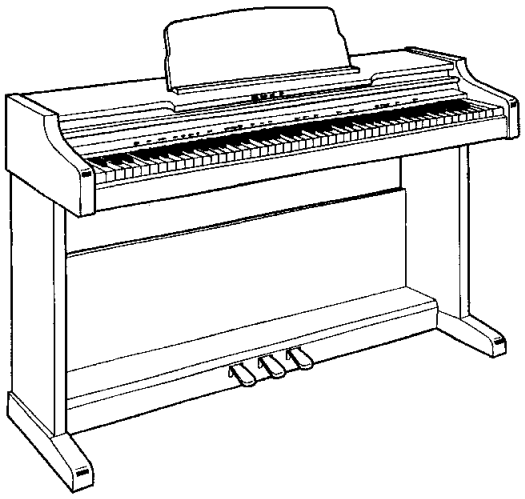
ORDER NO. EMID9901001C0
A4

Service Manual

Digital Piano

SX-PX332/PX332M



AREAS

(M): U.S.A.
(MC): Canada
(XM): Mexico
(EN): Norway, Sweden, Denmark, Finland
(EH): Holland, Belgium
(EF): France, Italy
(EZ): Germany
(EW): Switzerland
(EA): Austria
(EP): Spain, Portugal, Greece, South Africa
(EK): the United Kingdom
(XL): New Zealand
(XR): Australia
(XS): Malaysia
(XD): Saudi Arabia, Hong Kong, Kuwait
(XT): Taiwan
(X): Thailand, Indonesia, Iran, U.A.E., Panama, Argentina, Peru, Brasil
(XP): Philippines
(XW): Singapore

■ Specifications

KEYBOARD	88 KEYS
MAX. POLYPHONY	32 NOTES
SOUND	GRAND, UPRIGHT, E PIANO 1, E PIANO 2, HARPSI, VIBES, STRINGS, PIPE ORGAN
PEDAL	SOFT, SOSTENUTO, SUSTAIN
BRILLIANCE	MELLOW, BRIGHT (5 STEPS)
DIGITAL EFFECT	○
DIGITAL REVERB	○ (ROOM, STAGE, HALL, CONCERT)
TOUCH SENSITIVITY	LIGHT, NORMAL, HEAVY
TRANSPOSE	G--C–F#
TUNING	427.3 Hz–440.0 Hz–453.0 Hz
METRONOME	○ (TIME SIGNATURE: OFF, 2/4, 3/4, 4/4, 5/4, 6/8)
SEQUENCER	TRACK (1, 2) STORAGE CAPACITY: APPROX. 4500 NOTES, RECORDING MODE: REAL TIME
DISPLAY	○
DEMO	○
MIDI	MULTI TIMBRE, LOCAL CONTROL, OMNI ON, PROGRAM CHANGE, PEDAL, EFFECT, TRANSPOSE
MODE SET	PIANO TUNING, MINIMUM RANGE
OTHERS	POWER SWITCH, MAIN VOLUME, MIDI TERMINALS (IN, OUT), PEDAL IN, AUX IN (R/R+L, L), LINE OUT (R/R+L, L), COMPUTER, HEADPHONES×2, AC IN, INITIAL KEY
OUTPUT	80 W (40 W × 2)
SPEAKERS	14 cm × 2
POWER REQUIREMENT	100 W 110 W (NORTH AMERICA AND MEXICO) AC 120/220/240 V 50/60 Hz AC 120 V 60 Hz (NORTH AMERICA AND MEXICO) AC 230-240 V 50/60 Hz (EUROPE, AUSTRALIA, NEW ZEALAND, SINGAPORE AND PHILIPPINES)
DIMENSIONS (W×H×D)	138.7 cm × 103.2 cm × 48.5 cm (54-19/32" × 40-5/8" × 19-3/32")
NET WEIGHT	47 kg (103.6 lbs.)
ACCESSORIES	AC CORD, MUSIC STAND

•Specifications are subject to change without notice for further improvement.

⚠ WARNING

This service information is designed for experienced repair technicians only and is not designed for use by the general public. It does not contain warnings or cautions to advise non-technical individuals of potential dangers in attempting to service a product. Products powered by electricity should be serviced or repaired only by experienced professional technicians. Any attempt to service or repair the product or products dealt with in this service information by anyone else could result in serious injury or death.

Technics

© 1999 Matsushita Electric Industrial CO. , LTD. All rights reserved. Unauthorized copying and distribution is a violation of law.

WARNING

To prevent the risk of fire, smoke, or electrical shock and to ensure safe operation, please be sure to follow the safety guidelines below.

1. At places where special caution is required, the necessary safety precautions are clearly labeled or printed, for example, on the cabinet, or on the part concerned. Please follow these safety precautions, and also those listed in the Owner's Manual.

2. Parts which have a ⚠ mark in the circuit diagram or in the parts list are essential for safety. When replacing these parts, be sure to use only the specified parts.

3. Use the specified types for internal wiring (double-insulated wiring, etc.).

4. When replacing parts on the AC primary side (power transformer, electric switch, electrical cord, noise-prevention condenser, etc.), wind the lead wire and secure it by soldering.

5. Do not let the wiring come into contact with heat-emitting devices (fuse resistor, radiator plate, etc.).

6. When replacing the wiring, make sure that it is not in contact with the unfinished or rough edge of a part.

7. When replacing the power cord (except for the plug-in type), tug it from various directions to confirm that it does not slip out of place.

8. Spacing
   If soldering was done on the AC primary circuit, confirm that the interval between the soldered terminals or between the terminal and surrounding metallic parts is at least the minimum required (between the primary circuit and the chassis: at least 6.5 mm; between primary circuit terminals: at least 4.0 mm; between primary circuit terminals and secondary circuit terminals: at least 6.5 mm).

CONTENTS

■ **INTRODUCTION**

SAFETY PRECAUTION I-2
ARRANGEMENT OF CONTROL PANEL I-3
HOW TO ASSEMBLE THE PIANO I-5
KEYBOARD RANGES I-6
INITIAL SETTING I-6
TERMINALS I-7
PARTS LOCATION I-8
DISASSEMBLY INSTRUCTIONS I-9
SYMPTOMS WHICH APPEAR TO BE SIGNS OF TROUBLE I-12
ABOUT THE SELF-DIAGNOSTIC FUNCTION I-13
MIDI IMPLEMENTATION CHART I-15
PRECAUTIONS BEFORE SERVICING I-16

■ **SCHEMATIC DIAGRAMS**

WIRING CONNECTION Diagram II-1
BLOCK Diagram II-2
Measuring Condition of MAIN P.C.B. II-4
MAIN P.C.B. II-5
MAIN/COM CIRCUIT II-7
FJASP/HP CIRCUIT II-11
FJASP P.C.B. II-15
Measuring Condition of FJASP P.C.B. II-16
CPL/CPR P.C.B. II-17
CPL/CPR CIRCUIT II-18
HP/COM/PKB P.C.B. II-21
PKB CIRCUIT II-21
MKB1/MKB2 CIRCUIT II-22
MKB1 CIRCUIT II-23

■ **REPLACEMENT PARTS LIST**

P.C.B. AND WIRING PARTS LIST III-1
CABINET AND CHASSIS PARTS LIST III-6
CABINET PARTS LOCATION III-9
MANUAL KEYBOARD PARTS LOCATION III-11
MANUAL KEYBOARD III-11
PACKING III-12

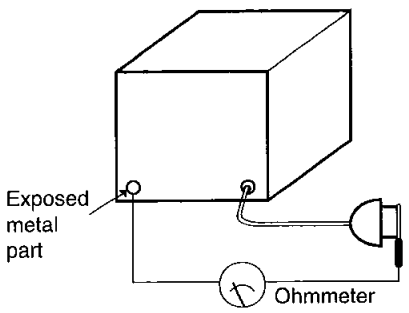
SAFETY PRECAUTION

● Safety Precaution

1. Before servicing, unplug the power cord to prevent an electric shock.
2. When replacing parts, use only the manufacturer's recommended components for safety.
3. Check the condition of the power cord. Replace if wear or damage is evident.
4. After servicing, be sure to restore the lead dress, insulation barriers, insulation papers, shields, etc.
5. Before returning the serviced equipment to the customer, be sure to make the following insulation resistance test to prevent the customer from being exposed to a shock hazard.

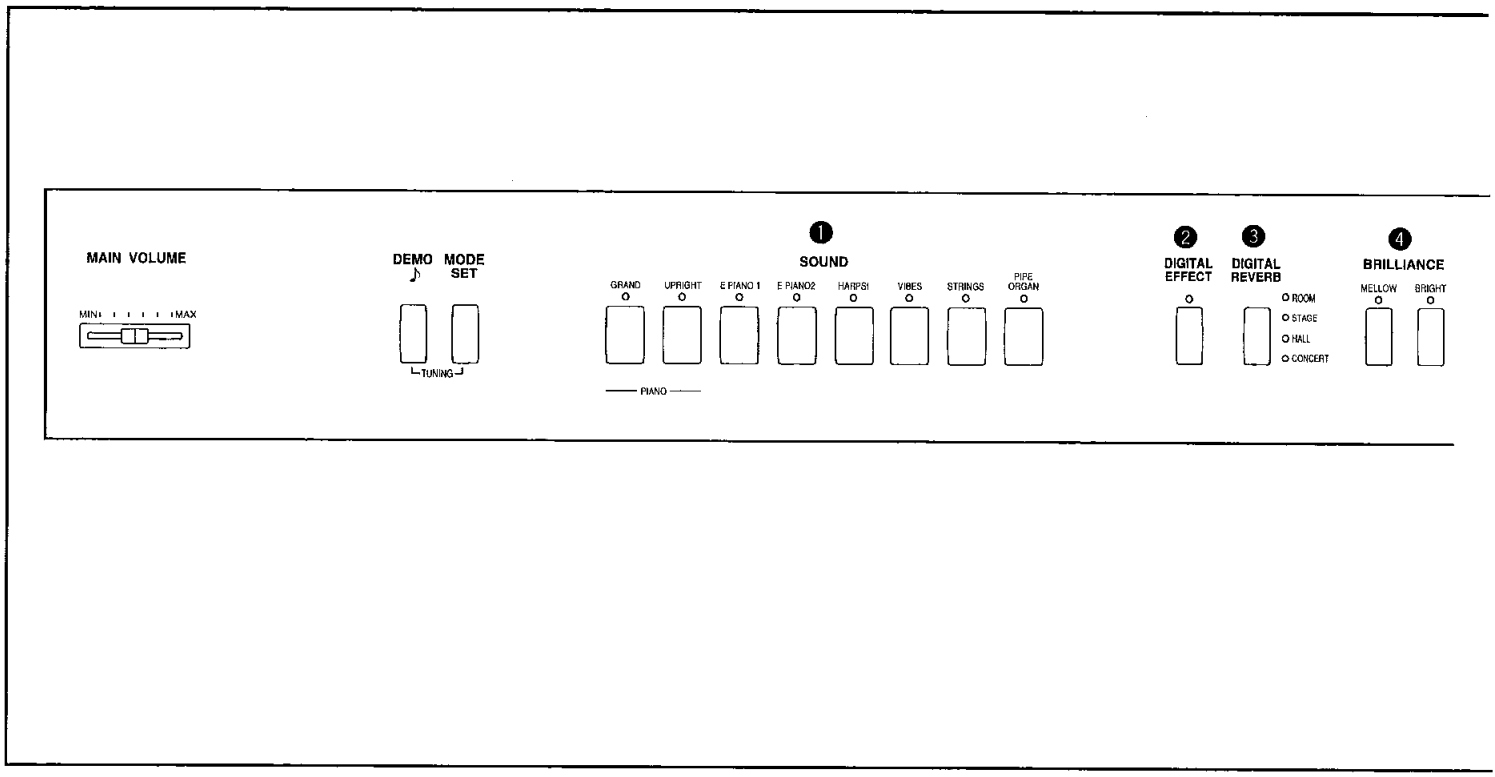
● Insulation Resistance Test

1. Unplug the power cord and short the prongs of the plug with a jumper wire.
2. Turn on the power switch.
3. Measure the resistance value with an ohmmeter between the jumpered AC plug and each exposed metal cabinet part, such as screw heads, connectors, control shafts, handle brackets, etc. Measurements should range from 4 MΩ to infinity for all exposed parts.



Resistance = 4MΩ to ∞

ARRANGEMENT OF CONTROL PANEL



❶ SOUND

Press one of the **SOUND** buttons to select the desired sound. Each sound features Touch Response, which increases the volume when the keyboard is played harder.

❷ DIGITAL EFFECT

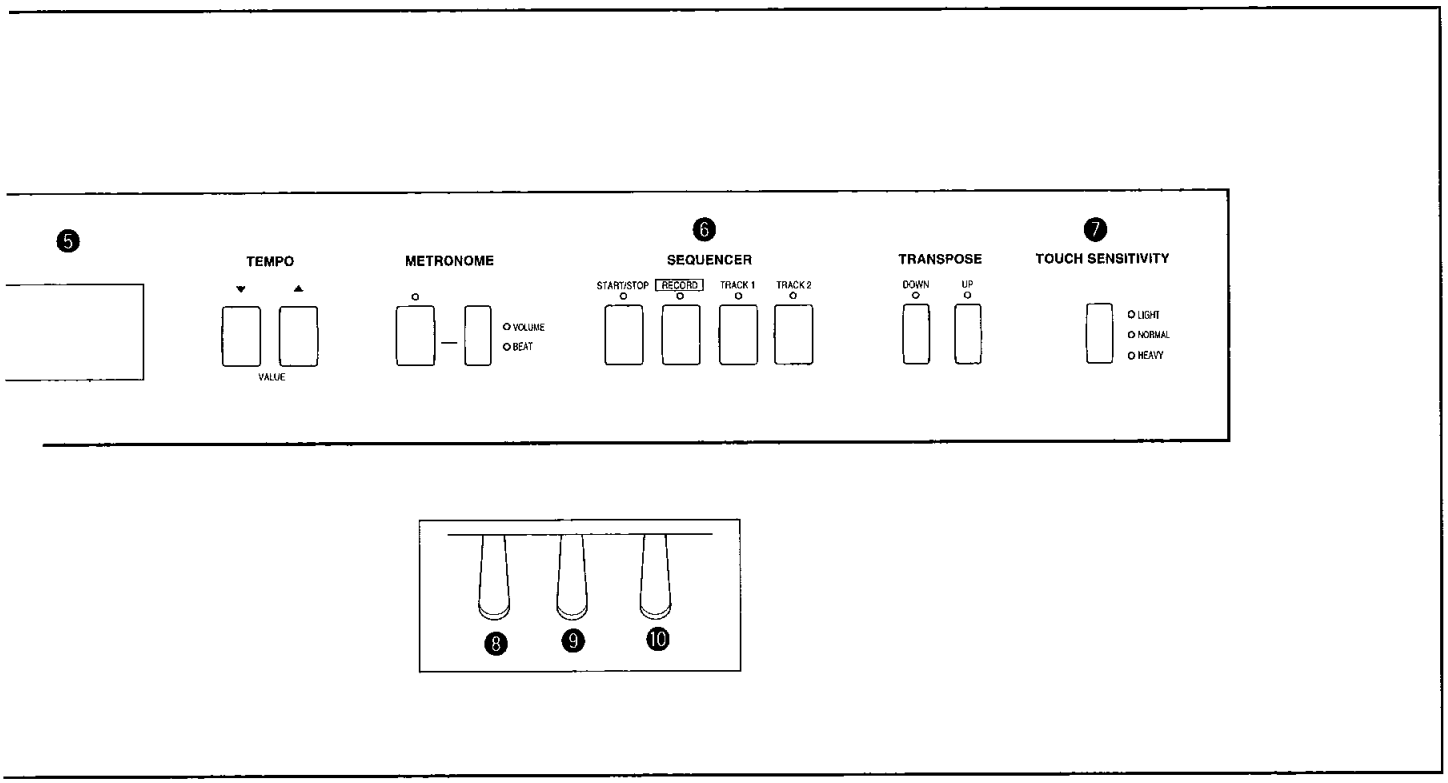
Apply a celeste effect to give the sound greater depth.

❸ DIGITAL REVERB

Add a reverb effect to the sound. Select from four echo types: **ROOM**, **STAGE**, **HALL** and **CONCERT**.

❹ BRILLIANCE

The **BRILLIANCE** allows you to select the brightness of the sound form 5 settings. If either of the buttons is pressed once, the current setting value will appear on the display, and it can then be changed. Pressing the **BRIGHT** button increases the brightness; when the **MELLOW** button is pressed, the sound becomes mellower. During setting the brightness is shown on the display (–2 to 2).



❺ Display
The display shows a variety of different setting values, and also the **SEQUENCER** and **METRONOME** tempos.

❻ SEQUENCER
Record your performance and have it automatically played back.

❼ TOUCH SENSITIVITY
Choose **LIGHT**, **NORMAL** or **HEAVY** keyboard touch (Touch Response) to match your type of playing.

❽ Soft pedal
When the pedal is depressed, the sound is softer.

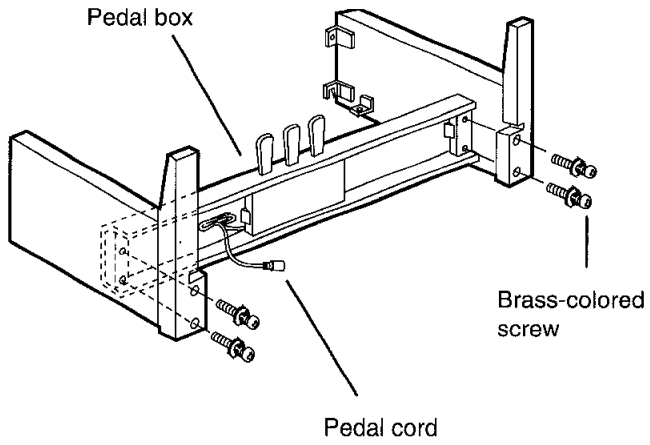
❾ Sostenuto Pedal
If the pedal is pressed while the keys are pressed, a sustain effect is applied to those notes only.

❿ Sustain Pedal
The sound is sustained when a key is released while this pedal is depressed.

HOW TO ASSEMBLE THE PIANO

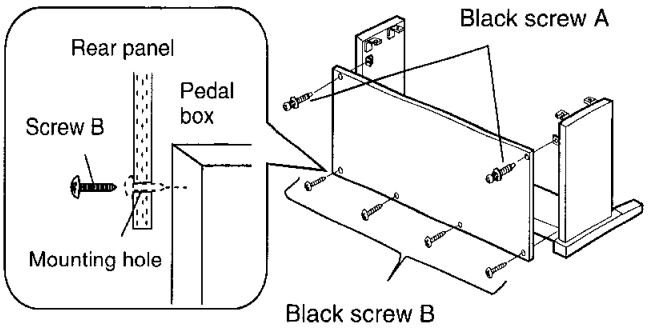
To prevent the piano unit from falling off the stand, secure it firmly with the screws.

1 Assemble the right and left planks to the pedal box with the 4 brass-colored screws.
- Loosen the pedal cord, stowed on the inner side of the pedal box, and extend it.



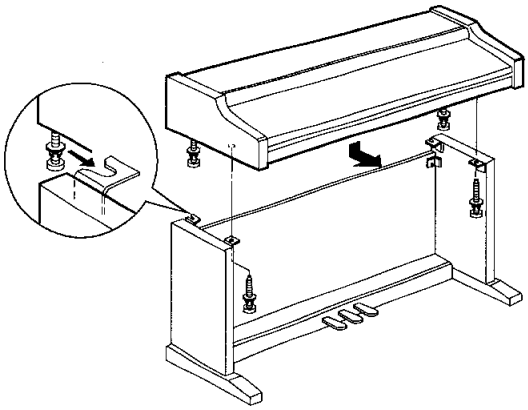
[Fig. 1]

2 Place the stand upright and mount the rear panel with 2 black screws A and 4 black screws B.
- Run the screws directly into the pedal box as there are no rough holes in the pedal box.



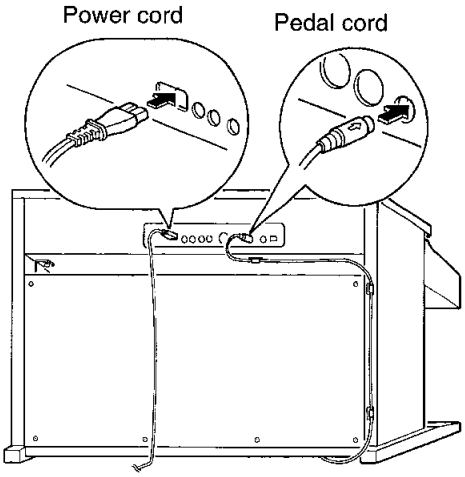
[Fig. 2]

3 Place the piano body on the stand and secure it with 4 black screws A.



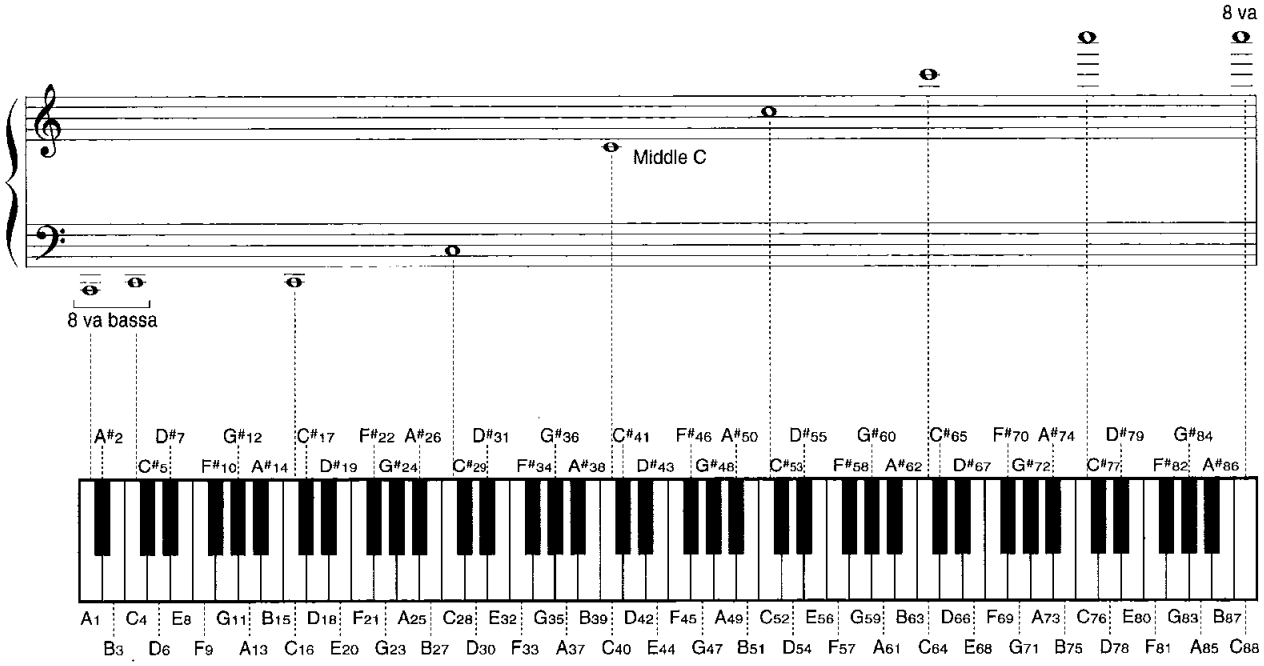
[Fig. 3]

4 Connect the pedal cord and power cord to the terminals located on the rear of the piano unit as shown below.
- Secure the pedal cord to the clamps as shown in the figure.



[Fig. 4]

KEYBOARD RANGES



INITIAL SETTING

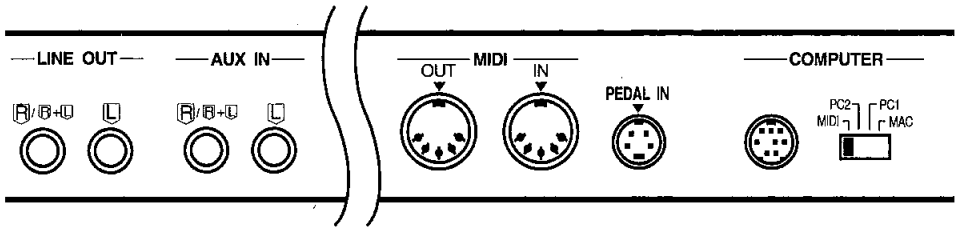
The following procedure resets all programmable settings, functions and memories to their initialized (factory-preset) status. Use this procedure if the buttons, keys, etc. malfunction, or when you wish to reset the memories and functions.

1. Turn off the **POWER** button.
2. While pressing the **INITIAL** key at the same time, turn the **POWER** button on again.

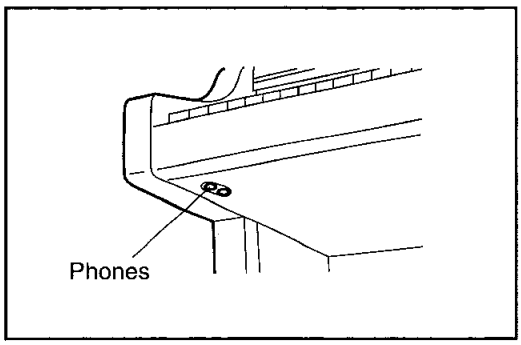
Or, you can press the **INITIAL** key while the **MODE SET** button is pressed.

TERMINALS

(on the rear panel)



HEADPHONES (phones) ×2
For silent practice, headphones may be used. When plugged in, the speaker system is automatically switched off, and sound is heard only through the headphones.



LINE OUT (output level 1.5 Vrms, 600 Ω)
By plugging into an external high-power amplifier, the sound can be reproduced at a high volume. (Use the **R/R+L** terminal when outputting monaural sound. However, there are some cases where the sound quality may deteriorate depending on the sound.)

AUX IN (input level 0.5 Vrms, 6 kΩ)
Other instruments such as a rhythm machine or sound module can be connected to the piano so that the sound is output from the piano. To receive monaural sound, connect the other instruments to the **R/R+L** terminal.

MIDI (Musical Instrument Digital Interface)
MIDI is the standard specification that enables connection to equipments such as synthesizers and personal computers.

IN : The terminal that receives data from external equipment.
OUT : The terminal that transmits data from this instrument to external equipment.
- Use a 5-pin DIN cord (less than 15 m long) for these connections.

PEDAL IN
Connect the included pedal.

COMPUTER
By connecting this terminal to the serial port of a computer, performance data can be exchanged. Use the switch to select the type of computer.
- Be sure that the power to this instrument is turned off when connecting to a computer or when changing the switch setting.
- The new switch setting will be effective when the power is turned on again.

Caution: Failure to turn off the power before changing the switch setting may result in malfunction.

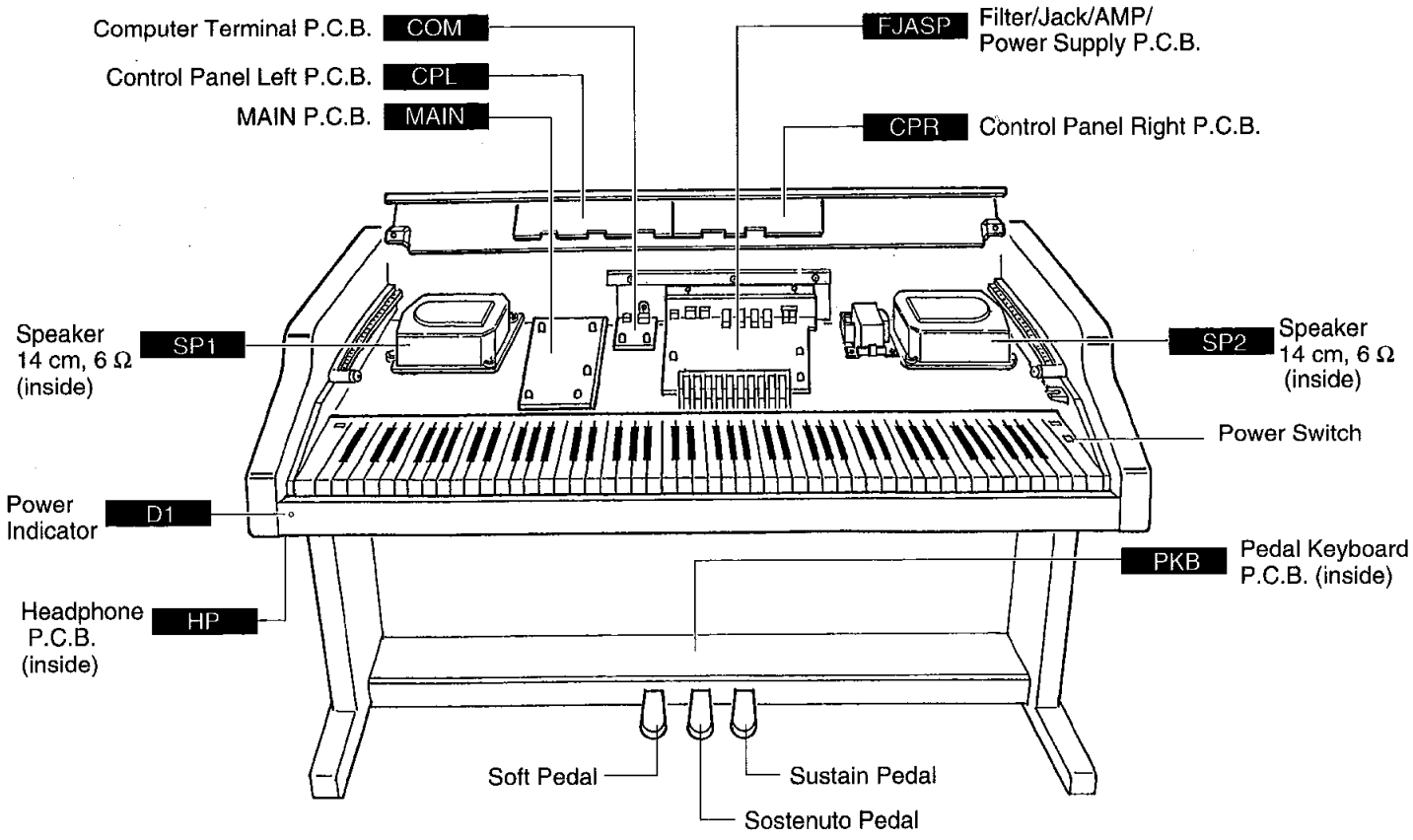
- When no computer is connected, or when a MIDI interface is used, the switch should be set to **MIDI**.

<Connection to a Macintosh series computer>
Use an ACCESSORY CABLE (SZ-JJAP1) to connect the **COMPUTER** terminal of this instrument to the modem port or printer port of a Macintosh Series computer. Set the switch to **MAC**.
- Set the MIDI interface clock of the Macintosh software to 1 MHz.

<Connection to a PC>
Use an ACCESSORY CABLE (SZ-JJAT1) to connect the **COMPUTER** terminal of this instrument to the RS232C terminal of a PC. Set the switch to **PC2**.
- The MIDI driver included with the cable should be installed in the computer. (Refer to the manual accompanying the cable.)

*Macintosh is a registered mark of Apple Computer, Inc.

PARTS LOCATION


Computer Terminal P.C.B. COM
Control Panel Left P.C.B. CPL
MAIN P.C.B. MAIN
FJASP Filter/Jack/AMP/ Power Supply P.C.B.
CPR Control Panel Right P.C.B.
Speaker 14 cm, 6 Ω (inside) SP1
SP2 Speaker 14 cm, 6 Ω (inside)
Power Switch
Power Indicator D1
PKB Pedal Keyboard P.C.B. (inside)
Headphone P.C.B. (inside) HP
Soft Pedal
Sustain Pedal
Sostenuto Pedal

[Fig.5]

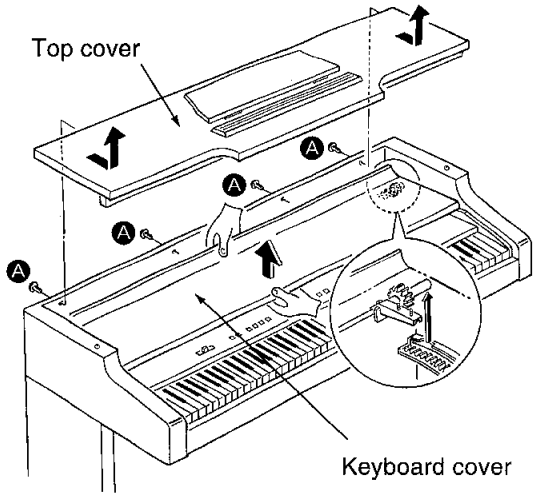
DISASSEMBLY INSTRUCTIONS

1 Removing the top cover

1. Remove the top cover mounting screws (Ⓐ 4 pcs.).
2. Slide the top cover forward and lift up (as shown by the arrows).

2 Removing the keyboard cover

1. Remove the top cover (see step 1).
2. Match the gears of the keyboard cover with the notches in the guide rail, and lift up the keyboard cover.

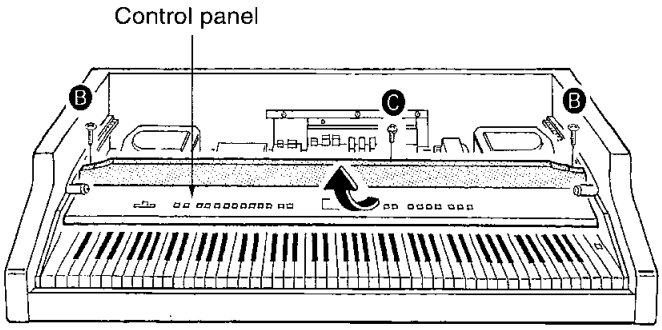


[Fig.6]

3 Removing the control panel

- Pull out the connectors on the control panel.

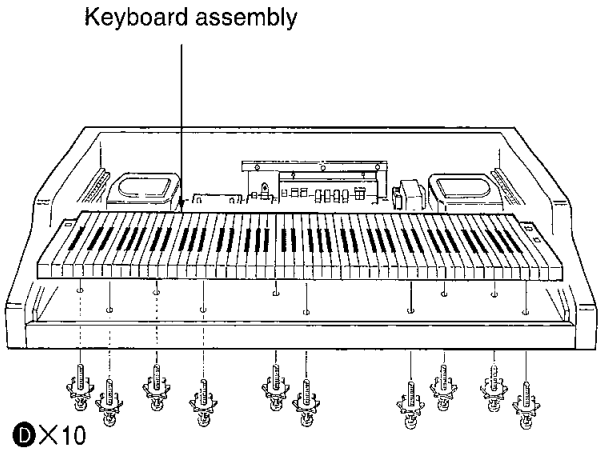
1. Remove the keyboard cover (see step 2).
2. Remove the control panel mounting screws (Ⓑ 2 pcs and Ⓒ 1 pc.).
3. Slide the control panel forward and pull out (as shown by the arrows).



[Fig.7]

4 Removing the keyboard assembly

1. Remove the control panel (see step 3).
2. Remove the keyboard assembly mounting screws located on the bottom of the cabinet (Ⓓ 10 pcs.).



[Fig.8]

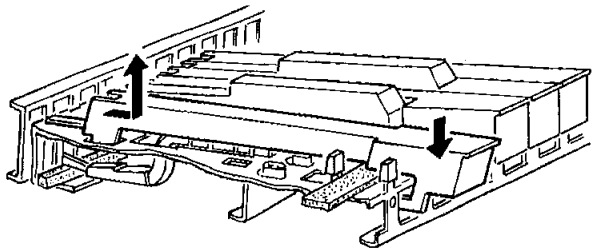
5 Key (s)

Disassembly

1. Remove the keyboard assembly (see step 4).
2. While pressing slightly the front of the key, push the rear of the key forward to disengage the key clow from the chassis.
3. Lift the key up to remove it.

NOTE:

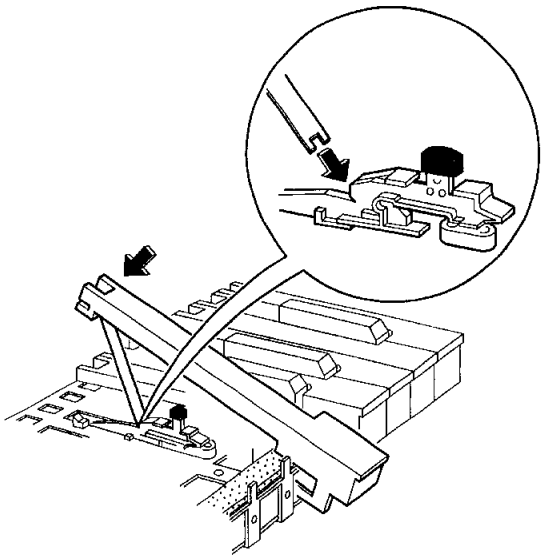
- The key claw is easily broken. Do not apply undue force. Should a key claw break, it can still be used.
- If a black key is to be replaced, it is necessary to remove both adjacent white keys.



[Fig.9]

Assembly

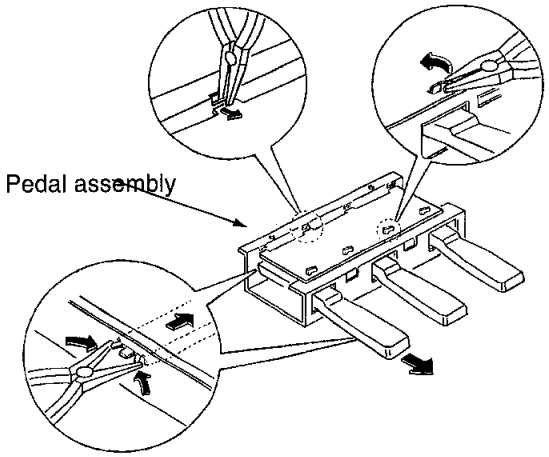
1. Insert the front part of the key into the chassis.
2. Insert the plate spring into the hammer notch as shown in the figure.
3. While slowly lowering the key into the chassis, insert the plate spring into the notch at the rear of the key.
4. Carefully insert the key into the opening in the chassis and slide the key towards the rear to lock it in place.



[Fig.10]

6 Disassembly of the pedal assembly

1. Remove the pedal assembly from the pedal box.
2. Disassemble the pedal assembly as shown in the figure.



[Fig.11]

7 Removing the speakers.

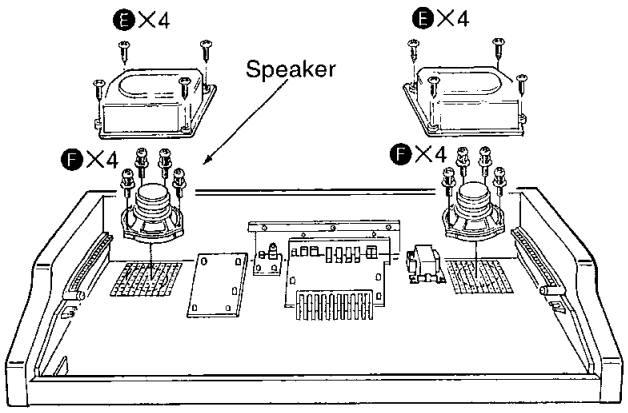
Remove the top cover (see step 1).

Removing the speaker box

Remove the speaker box mounting screws (E 4 pcs. each).

Removing the speakers

Remove the speakers mounting screws (F 4 pcs. each).



[Fig.12]

8 Removing the printed circuit boards

- Remove the top cover (see step 1).
- Pull out the connectors on the printed circuit boards.

MAIN P.C.B.

1. Remove the ground wire holding screw (G 1 pc.).
2. Release the claws of the 5 P.C.B. holders.

FJASP P.C.B.

1. Remove the FJASP P.C.B. mounting screws (H 2 pcs. and I 2 pcs.).
2. Release the claws of the 3 P.C.B. holders.

COM P.C.B.

1. Remove the COM P.C.B. mounting screws (J 1 pc.).
2. Release the claws of the 2 P.C.B. holders.

HP P.C.B.

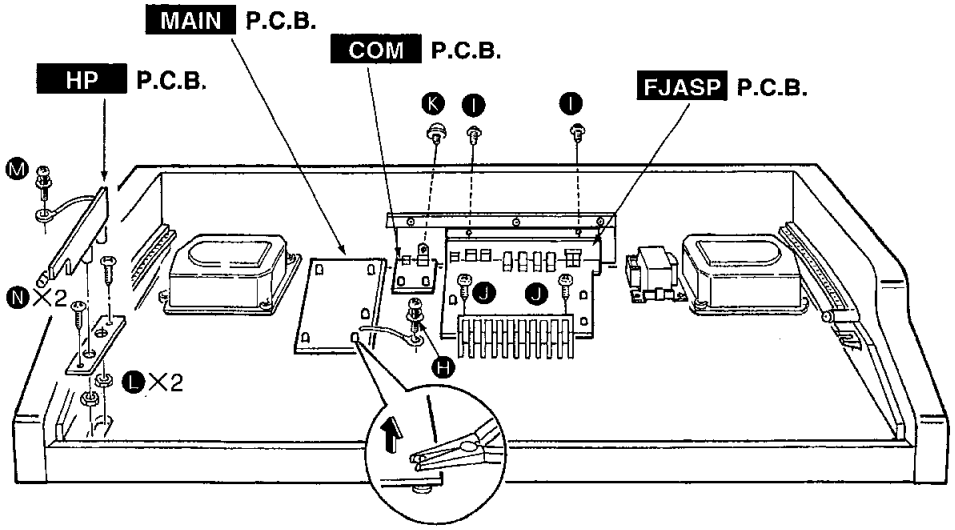
1. Remove the keyboard assembly (see step 4).
2. Remove the headphone jack mounting nuts (K 2 pcs.).
3. Remove the ground wire holding screw (L 1 pc.).
4. Remove the HP P.C.B. mounting screws (M 2 pcs.).

CPL P.C.B.

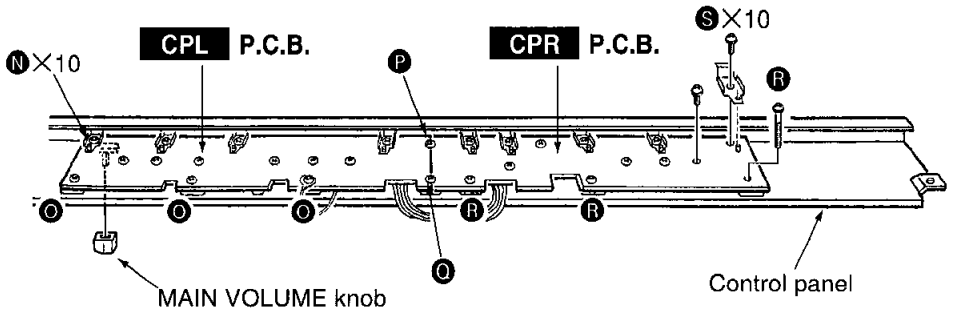
1. Remove the control panel (see step 3).
2. Pull of the MAIN VOLUME knob.
3. Remove the CPL P.C.B. mounting screws (N 10 pcs., O 3 pcs., P 1 pc. and Q 1 pc.).

CPR P.C.B.

1. Remove the control panel (see step 3).
3. Remove the CPR P.C.B. mounting screws (R 3 pcs., S 10 pcs., P 1 pc. and Q 1 pc.).



[Fig.13]



[Fig.14]

SYMPTOMS WHICH APPEAR TO BE SIGNS OF TROUBLE

The following changes in performance may occur in the Technics Digital Ensemble but do not indicate trouble.

Phenomenon	Remedy
No sound is produced when the keyboard is played.	• No sound is produced if the **MAIN VOLUME** is set to **MIN**. Use the sliding control to set the volume to an appropriate level. • If the MIDI LOCAL CONTROL is set to off, set it to on.
Nothing is shown on the display.	• The metronome, **SEQUENCER** tempo, etc. are indicated on the display. During normal performance, however, the display is off.
Data cannot be exchanged through MIDI terminals.	• The switch for the **COMPUTER** terminal is not set to **MIDI**. Turn off the power to this instrument and set the switch to **MIDI**. • Match the channels on the transmitting side and the receiving side.
The sound quavers or is distorted.	• When the **COMPUTER** terminal or both the **MIDI IN** and **OUT** terminals are connected to a computer, depending on the computer software the received data may be sent back to the instrument just as it is. Because of this the sound generated from the keys and the sound generated from the returned data are both produced, causing undesirable effects, such as the sounds canceling each other out, for example. In this case, either change the software settings to prevent received data from being returned, or set the MIDI LOCAL CONTROL to off.

■ About the backup memory

The selected sound and various functions, MIDI settings and **SEQUENCER** contents remain in the memory for about one week after the **POWER** is turned off.

- The backup memory will not function until the **POWER** has been on for about 10 minutes.
- If you wish to return all memories and settings to their initialized status, while pressing the **MODE SET** button, press the **INITIAL** key on the keyboard. Or you can turn on the **POWER** while pressing the **INITIAL** key.
- When the **POWER** is turned on, the MIDI LOCAL CONTROL is set to on.
- If you wish to retain the memory for longer than one week, before one week has elapsed, turn on the power and leave it on for about 10 minutes before turning it off again. The settings will remain in the memory for about one week from this time.

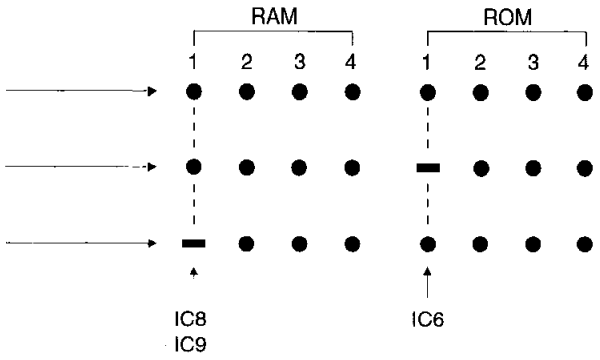
ABOUT THE SELF-DIAGNOSTIC FUNCTION

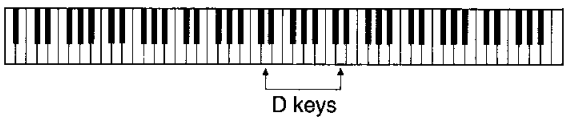
This model has some self-diagnostic capabilities. When set to the self-diagnostic mode, operation of various components can be verified by following the procedures in the chart below.

<table>
<tr><th>No.</th><th>PCB</th><th>TEST MODE</th><th>Procedure</th></tr>
<tr><td>1</td><td>MAIN</td><td>RAM (IC8, 9), ROM (IC6) check</td><td>1. Connect the CHECKING DEVICE (refer to page I-14) to CN9 on the MAIN P.C.B., and turn on the CHECKING DEVICE switch.
2. Turn on the power switch.</td></tr>
<tr><td></td><td></td><td colspan="2">When the power switch is turned on, the LED of the CHECKING DEVICE flashes 8 times. The first 4 flashes are for the RAM check, and the latter 4 flashes are for the ROM check. The order of the LED flashes correspond to the respective IC numbers as shown below. If an IC is defective, the corresponding flash time is longer.

Examples
1. RAM OK, ROM OK
2. RAM OK, ROM (IC6) defective
3. RAM (IC8, 9) defective, ROM OK

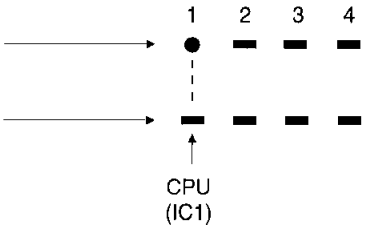
NOTE : ● indicates short flash time
▬ indicates long flash time

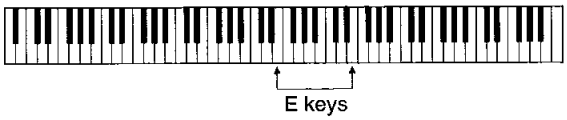
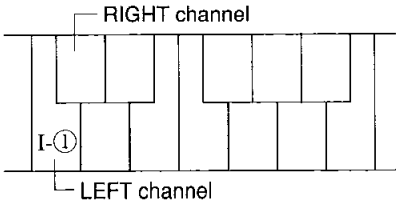
 
</td></tr>
<tr><td>2</td><td>CPL</td><td>CPU (IC1) check</td><td>1. Connect the CHECKING DEVICE to CN9 on the MAIN P.C.B. (the Checking Device switch should be off).
2. Press and hold the two D keys shown below, and then turn on the power switch.

 
</td></tr>
<tr><td></td><td></td><td colspan="2">When the power switch is turned on, the LED of the CHECKING DEVICE flashes 4 times. The order of the LED flashes corresponds to the CPU (IC) on the respective P.C.B.s as shown below. If an IC is defective, the corresponding flash time is longer.

1. IC1 OK
2. IC1 defective

NOTE : ● indicates short flash time
▬ indicates long flash time

 
</td></tr>
</table>

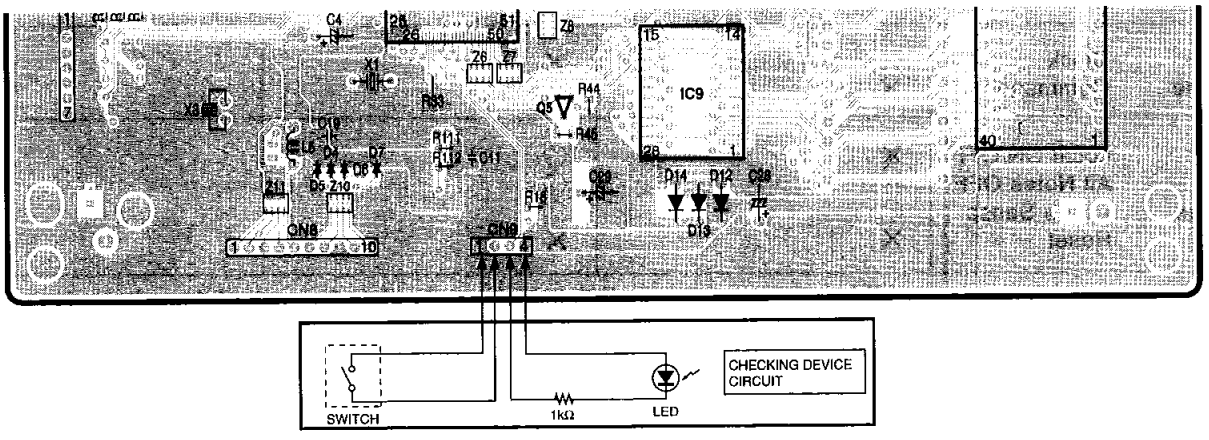
<table>
<tr><th>No.</th><th>PCB</th><th>TEST MODE</th><th>Procedure</th></tr>
<tr><td rowspan="2">3</td><td rowspan="2">MAIN</td><td>Wave ROM check
MAIN: IC12</td><td>1. Press and hold the two E keys shown below, and then turn on the power switch.
2. Select the POP GRAND sound.
3. Reduce the MAIN VOLUME level low ennogh.
 
E keys</td></tr>
<tr><td>When set to the self-diagnostic mode, the Wave ROM outputs a sine wave. The Wave ROMs correspond to the keyboard keys as shown in the diagram to the right. When a key is pressed, the corresponding sine wave sound is produced. If no sound is produced, or if the sound is distorted, the Wave ROM corresponding to that key is defective. This methode allows to diagnose also the output routes (L/R) from the Wave ROM.</td><td>• The key number indicates the Wave ROM number. (I-①: IC12)
 
</td></tr>
<tr><td rowspan="2">4</td><td rowspan="2">CPL
CPR</td><td>Control Panel buttons LED ligting check</td><td>Press and hold the two F keys shown below, and then turn on the power switch.

F keys</td></tr>
<tr><td colspan="2">Press the buttons on the control panel and confirm that the corresponding LEDs light.</td></tr>
<tr><td rowspan="2">5</td><td rowspan="2"></td><td>Control Panel LED display check</td><td>Press and hold the two G keys shown below, and then turn on the power switch.

G keys</td></tr>
<tr><td colspan="2">The numbers are displayed automatically and repieatedly on the display.</td></tr>
<tr><td rowspan="2">6</td><td rowspan="2">MKB</td><td>Keyboard ROM (IC1) check</td><td>Press and hold the two A keys shown below, and then turn on the power switch.

A keys</td></tr>
<tr><td colspan="2">If the keyboard ROM (IC1) is OK, the TOUCH SENSITIVITY LIGHT LED only flashes on the control panel. If it is defective, the LEDs (LIGHT and NORMAL, or LIGHT, NORMAL and HEAVY) flash.</td></tr>
</table>

■ Connection between serving CHECKING DEVICE and MAIN P.C.B.



MIDI IMPLEMENTATION CHART

Digital Piano [SX-PX322] [SX-PX322M]

Function		Transmitted	Recognized	Remarks
Basic	Default	1–16	1–16	memorized
Channel	Changed	1–16	1–16	
	Default	3	1, 3	memorized
Mode	Messages	×	×	
	Altered	—	—	
Note		*21–108	0–127	
Number	True voice	—	*0–127	
Velocity	Note ON	○	○	
	Note OFF	× (9nH: V=0)	×	
After	Key's	×	×	
Touch	Ch's	×	×	
Pitch Bend		×	○	
	01	×	**○	modulation
	06,38	×	**○	data entry
	07	×	**○	volume (part)
	10	×	**○	pan
Control	11	×	**○	part expression
Change	64	○×	○×	sustain pedal
	66	○×	○×	sostenuto pedal
	67	○×	○×	soft pedal
	91	×	**○	reverb depth
	93	○×	○×	digital effect
	98, 99	×	**○	NRPN LSB, MSB
	100,101	×	**○	RPN LSB, MSB
Prog		○×	○×	
Change	True #	0 – 127	0– 7	
System Exclusive		×	×	
System	Song Pos	×	×	
	Song Sel	×	×	
Common	Tune	×	×	
System	Clock	×	×	
Real Time	Commands	×	×	
Aux	Local ON/OFF	×	○	
	All Notes OFF	×	○	
Messages	Active Sense	○	○	
	Reset	×	×	
Notes		○× .....Whether or not the data for each of these items is transmitted or received can be set. * Changes depending on the **TRANSPOSE** setting. ** Effective only in the MULTI TIMBRE mode.		

Mode 1: OMNI ON, POLY **Mode 2:** OMNI ON, MONO ○ : Yes

Mode 3: OMNI OFF, POLY **Mode 4:** OMNI OFF, MONO × : No

PRECAUTIONS BEFORE SERVICING

■ Precautions for measuring of the output waveforms.

1. The waveform was measured with a "National Digital Storage Oscilloscope VP-5730A". Therefore the waveforms of musical tone signals shown may differ somewhat due to the difference in the timing of triggering.
2. Since the 1/10 test probe is used, the indicated voltage value on the bottom part of each waveform photo is 1/10 of the actual value (e.g. 0.2 V/cm should be 2.0 V/cm).
3. To measure the waveforms, first set this unit to the self-diagnostic mode (refer to page I-14, No. 3). The Wave ROM output will then be output as a sine wave to facilitate the servicing check.

■ Important safety notice:

Components identified by a ⚠ mark have special characteristics impotant for safety.
When replacing any of these components, use only manufacture's specified parts.

■ Symbolic Marks

The symbolic marks for resistors and capacitors which used in this circuits are classified as following TABLE-1 and TABLE-2.

1. RESISTORS
   - Resistors without symbolic mark are FIXED CARBON FILM RESISTORS (ERD-type).
   - All resistors are 1/4 WATT, ±5 % TOLERANCE unless otherwise designated in schematic diagrams.

(TABLE-1)

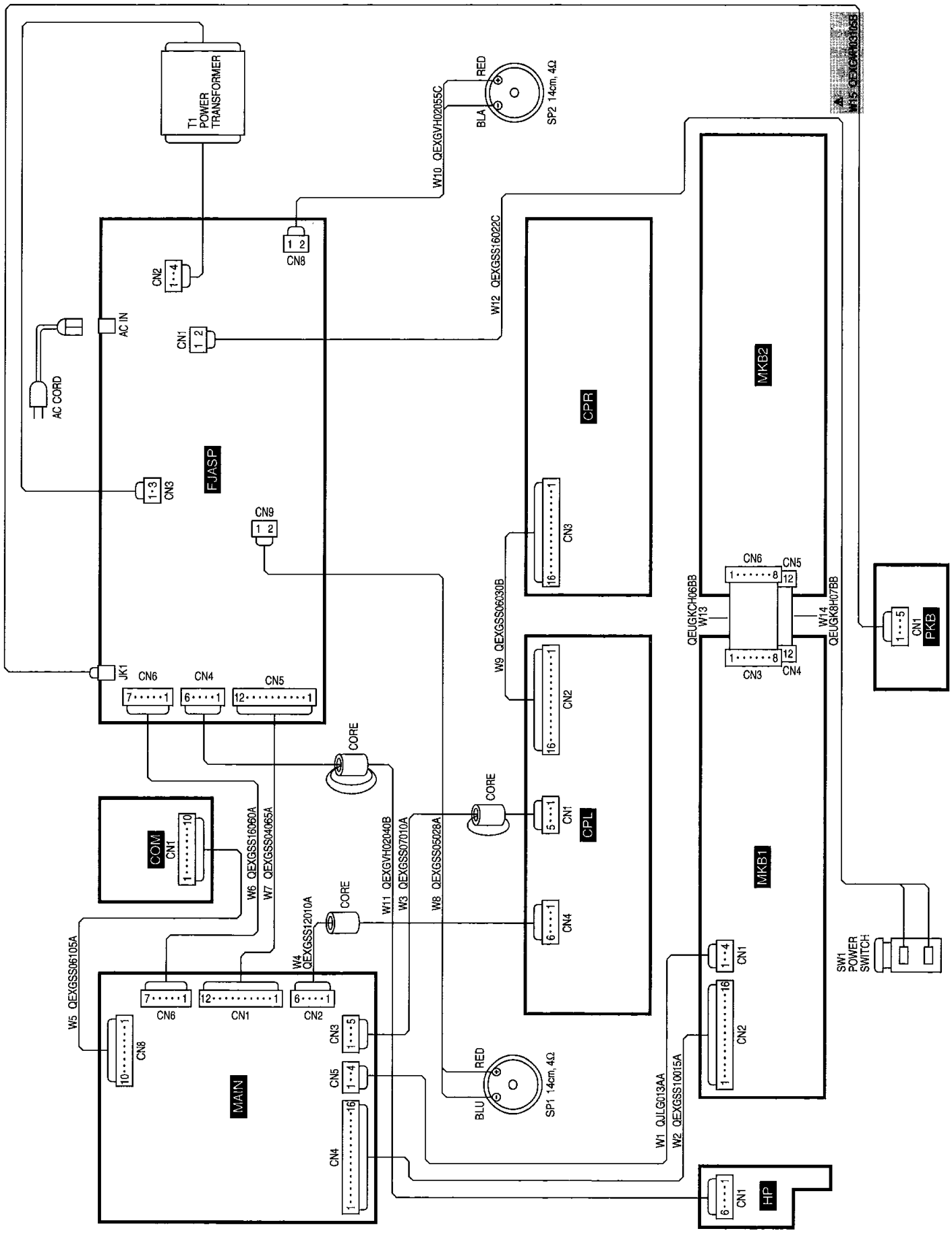
SYMBOL	SPECIFICATION	SYMBOL	SPECIFICATION
Ⓕ	Fixed Carbon Film Resistors "FLAME-PROOF" (ERD—F—type)	Ⓕ	Fixed Metal Film Resistors "FLAME-PROOF" (ERX—type)
Ⓕ	Fixed Wire Wound Resistors "FLAME-PROOF" (ERF—type)	[F]	Fuse Type Fixed Metal Oxide Film Resistors "FLAME-PROOF" (ERQ—type)
Ⓕ	Fixed Metal Oxide Film Resistors "FLAME-PROOF" (ERG—type)	[F]	Fuse Type Fixed Carbon File Resistors "FLAME-PROOF" (ERD2FC—type)
Ⓖ	Fixed Metal Film Resistors (Precision and High Stability) (ERO—type)		

2. CAPACITORS
   - Capacitors without symbolic mark are POLYESTER CAPACITORS. (ECQM-type, ECQG-type, ±10 % Tolerance)
   - Polarized capacitors without symbolic mark are Aluminum Electrolytic Capapcitors. (ECEA-type, ±20 % Tolerance)

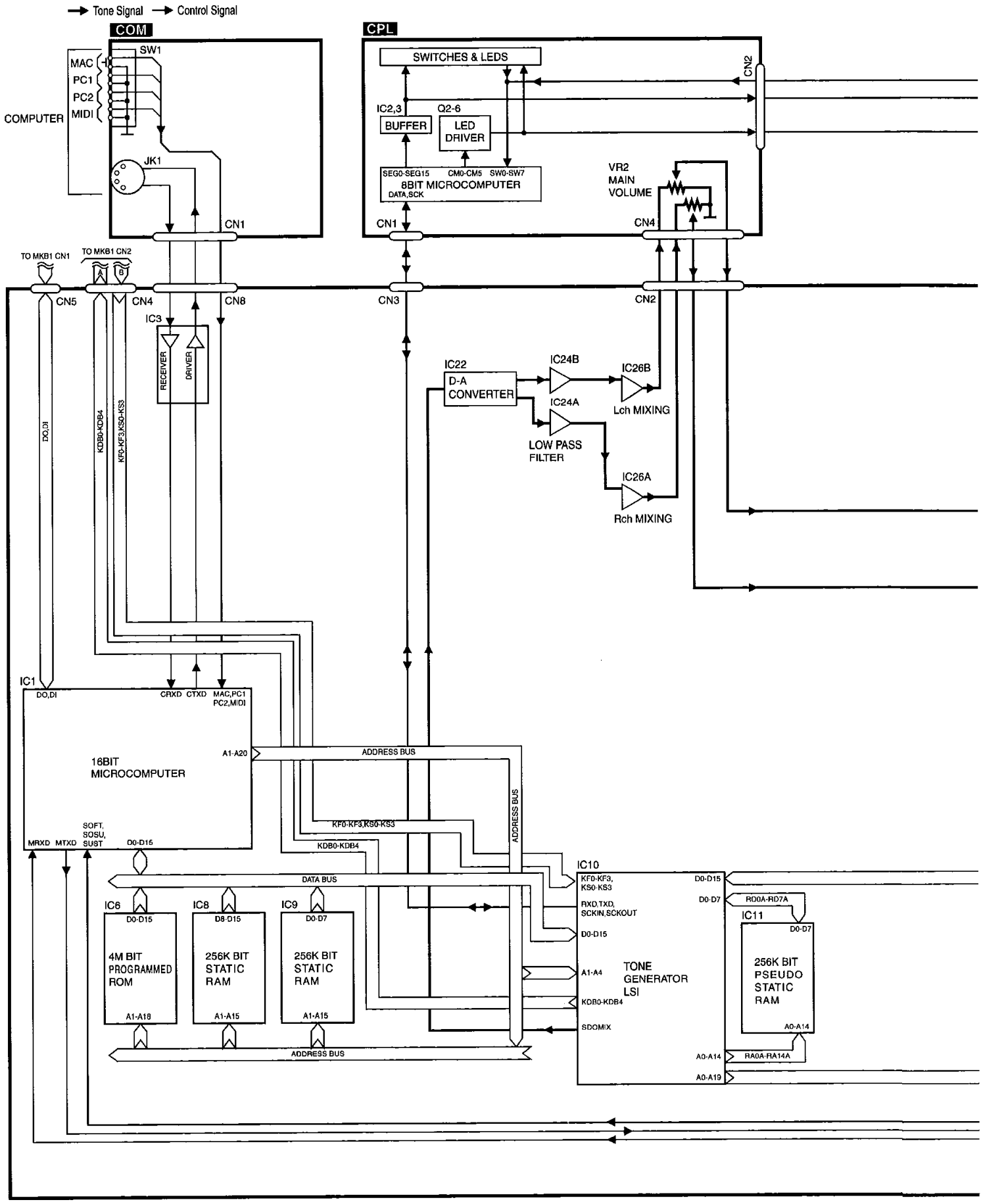
(TABLE-2)

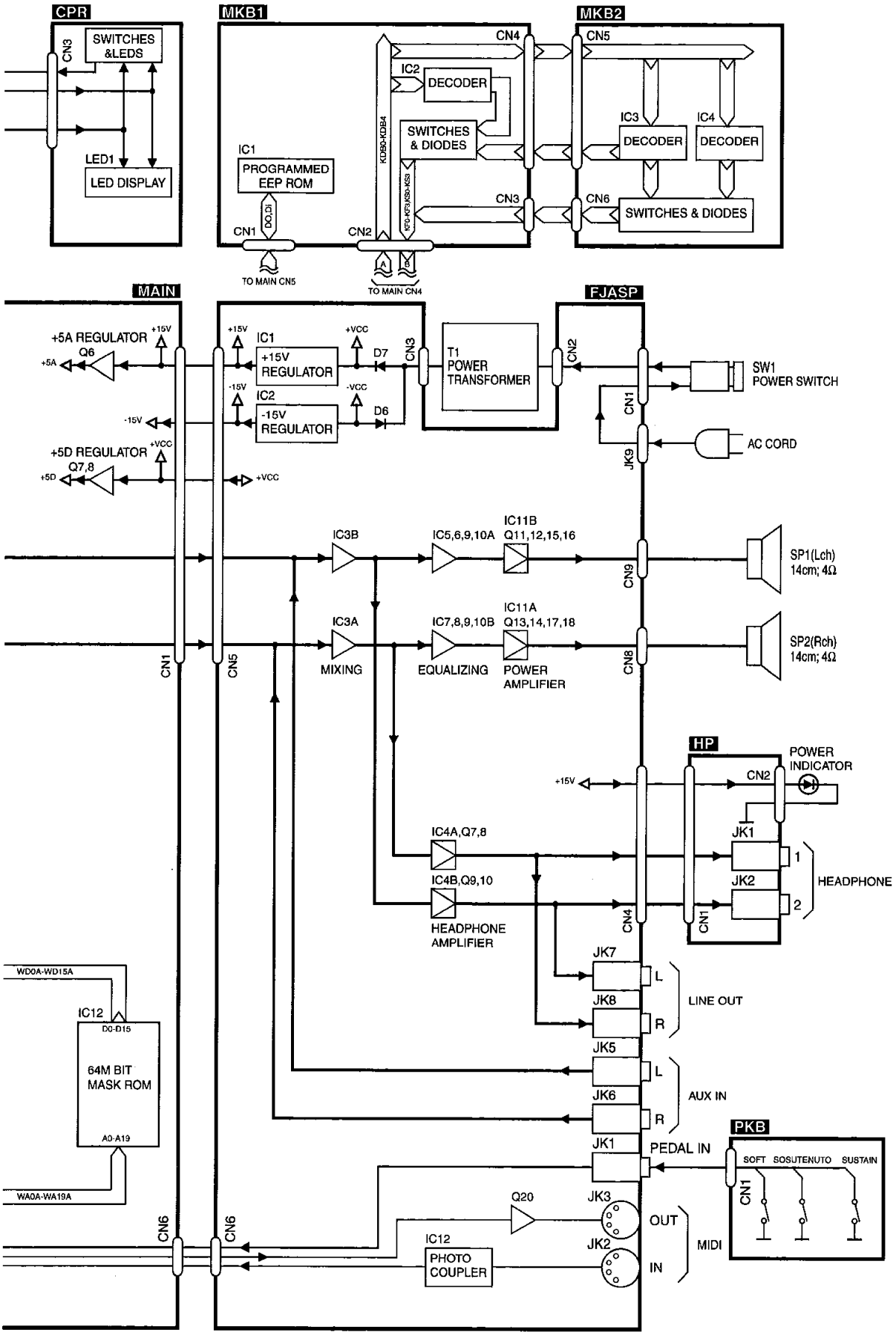
SYMBOL	SPECIFICATION	TYPE
Ⓝ	Non-Polarized Electrolytic Capacitors	ECEA_KN_type
Ⓨ	Non-Polarized Electrolytic (for Network system)	ECEA_Y_type
Ⓣ	Tantalum Solid Electrolytic Capacitors	ECS_type
(TF)	Metalized Plastic Film Capacitors (TF Series)	ECQV_type
○	Temperature Compensating Ceramic Capacitors	ECC_type
	High-Dielectric Constant Ceramic Capacitors	ECK_type ECR_type
	Axial Lead Ceramic Capacitors	ECB_type
	Metalized Polyester Film Capacitors for Across the Line	ECQ_EW_type
	Aluminum Electrolytic Capacitors for Smoothing Circuit	ECES_type
	Multilayer Ceramic Chip Capacitors	ECUV_type

■WIRING CONNECTION Diagram



■BLOCK Diagram




CPR
SWITCHES &LEDS
CN3
LED1
LED DISPLAY
MKB1
CN4
IC2
DECODER
SWITCHES & DIODES
KD50-KD64
KS1-KS3/KS5-KS31
IC1
PROGRAMMED EEP ROM
D0-D31
CN1
CN2
CN3
TO MAIN CN5
TO MAIN CN4
MKB2
CN5
IC3
DECODER
IC4
DECODER
CN6
SWITCHES & DIODES
MAIN
FJASP
+5A REGULATOR
Q6
+5A
+15V
IC1
+15V REGULATOR
D7
+VCC
-15V
IC2
-15V REGULATOR
D6
-VCC
CN3
T1
POWER TRANSFORMER
CN2
SW1
POWER SWITCH
CN1
AC CORD
JK9
+5D REGULATOR
Q7,8
+5D
IC3B
IC5,6,9,10A
IC11B
Q11,12,15,16
CN9
SP1(Lch)
14cm; 4Ω
IC3A
IC7,8,9,10B
IC11A
Q13,14,17,18
CN8
SP2(Rch)
14cm; 4Ω
MIXING
EQUALIZING
POWER AMPLIFIER
CN1
CN5
HP
POWER INDICATOR
CN2
IC4A,Q7,8
JK1
1
IC4B,Q9,10
JK2
2
HEADPHONE
HEADPHONE AMPLIFIER
CN4
CN1
JK7
L
JK8
R
LINE OUT
JK5
L
JK6
R
AUX IN
JK1
PEDAL IN
PKB
SOFT
SOSUTENUTO
SUSTAIN
CN1
WD0A-WD15A
IC12
D0-D15
64M BIT MASK ROM
A0-A19
WA0A-WA19A
CN6
CN6
Q20
JK3
OUT
JK2
IN
MIDI
IC12
PHOTO COUPLER

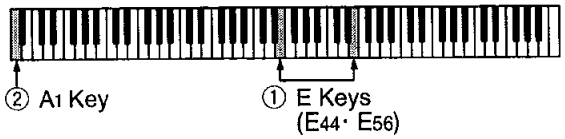
■Printed Circuit Board and Schematic Diagram

■Measuring Condition of MAIN P.C.B.

Check Poin ❹, ❻, ❽

Set to the self-diagnostic mode followings.

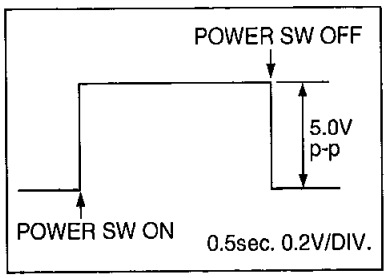
- While pressing two E keys (①) simultaneously, turn on the power switch.
- SOUND ..... CONCERT GRAND
- Main Volume ..... MAX
- Keyboard ..... A_1 (②)



Check Point ❶

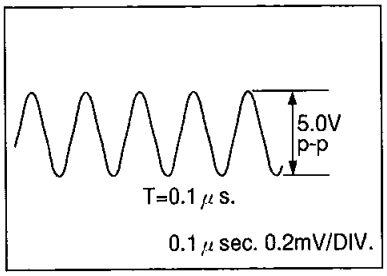
Set the initial setting mode (Refer to page I-6)

❶ $\overline{\text{RESET}}$

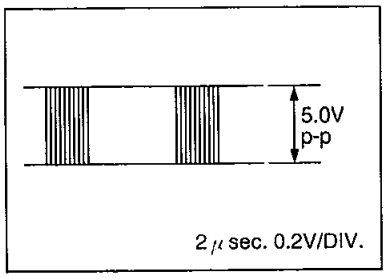


• Power SW ..... ON → OFF

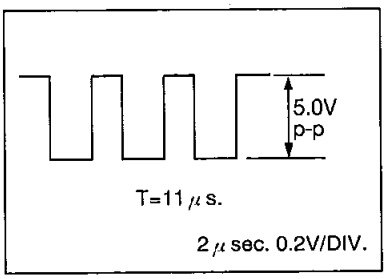
❷ TG CLOCK



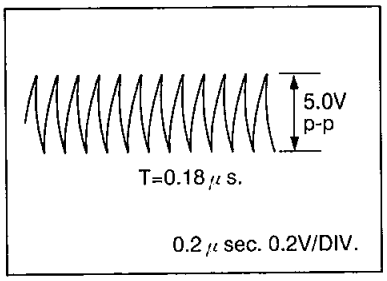
❹



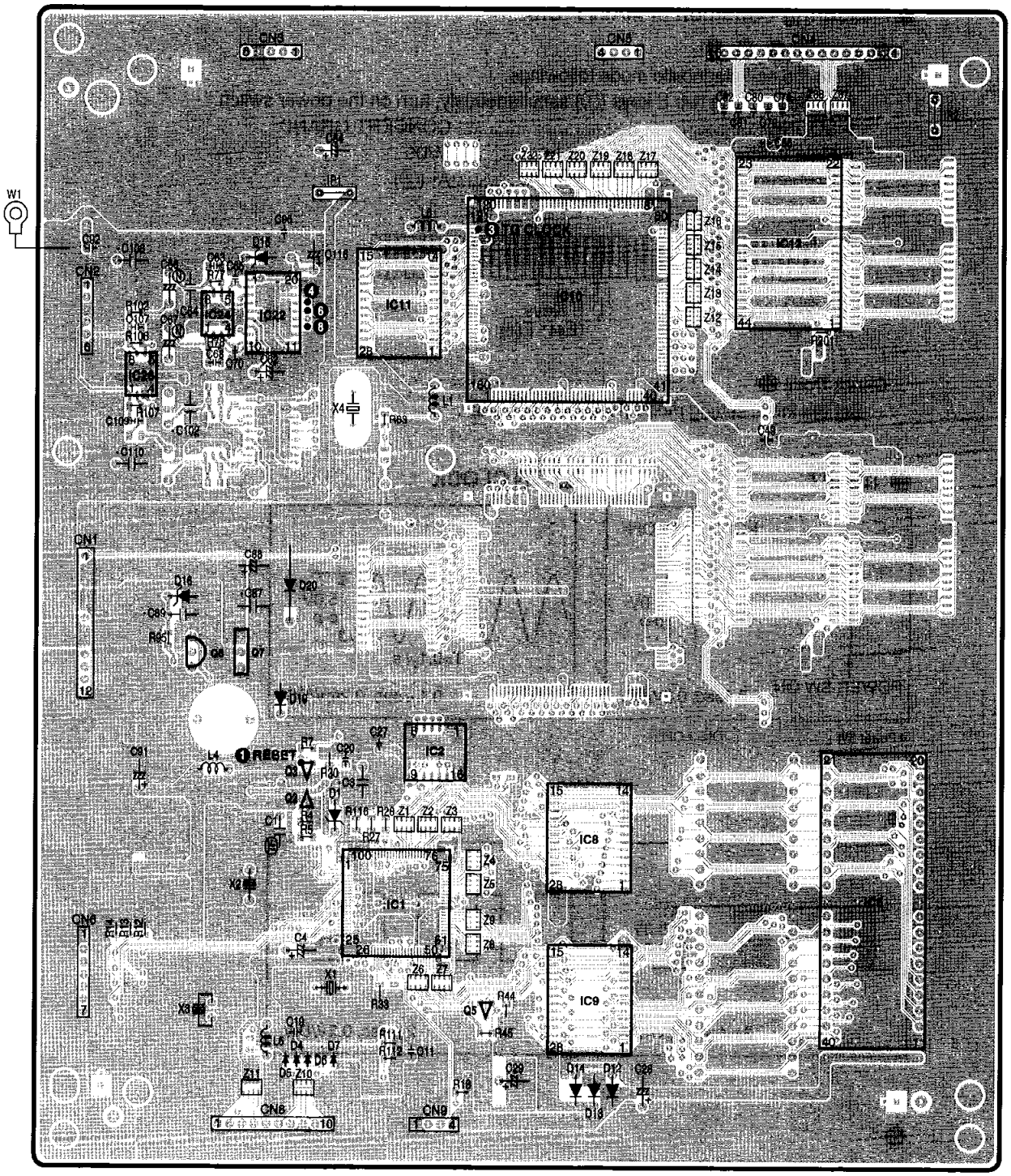
❻



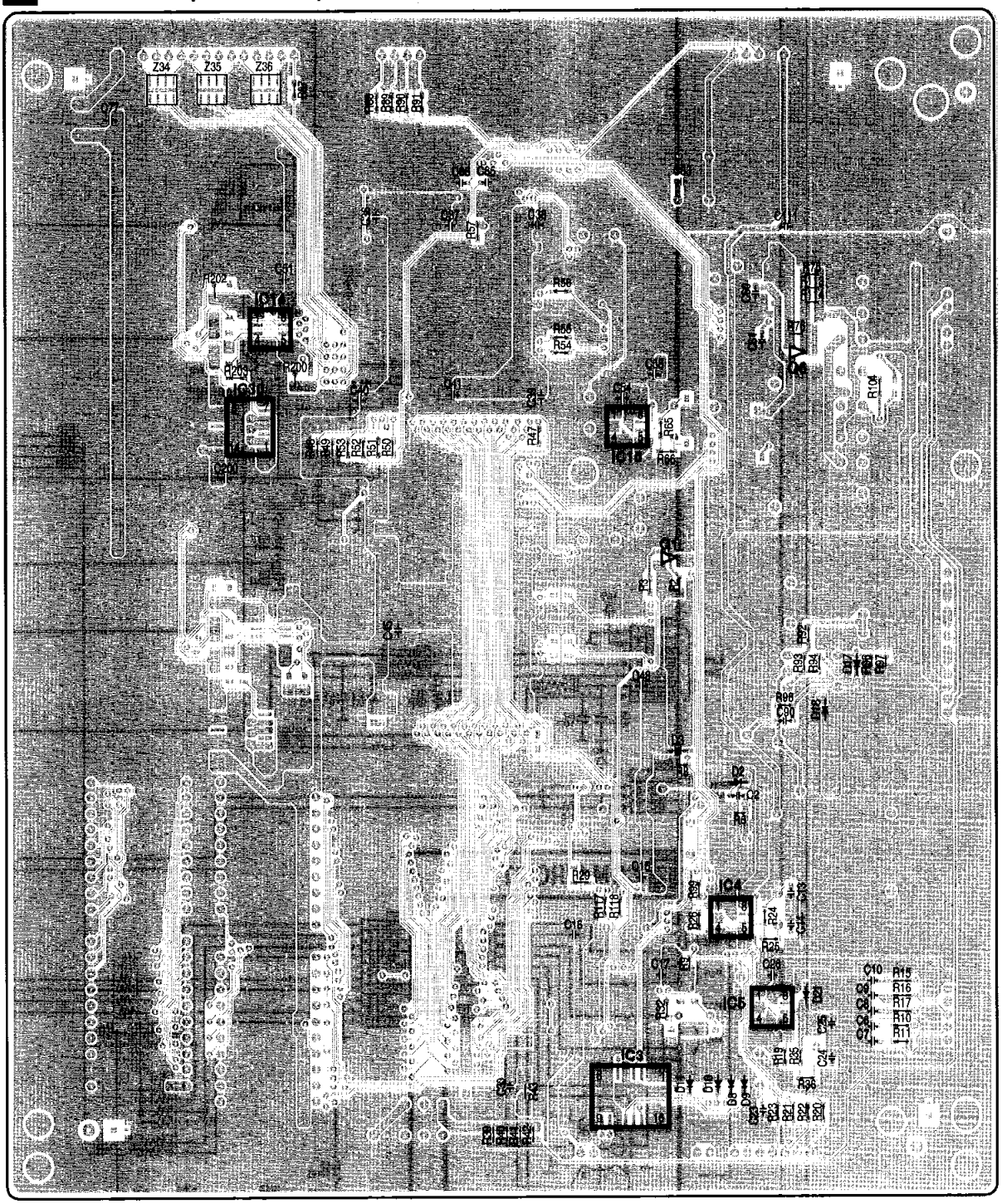
❽



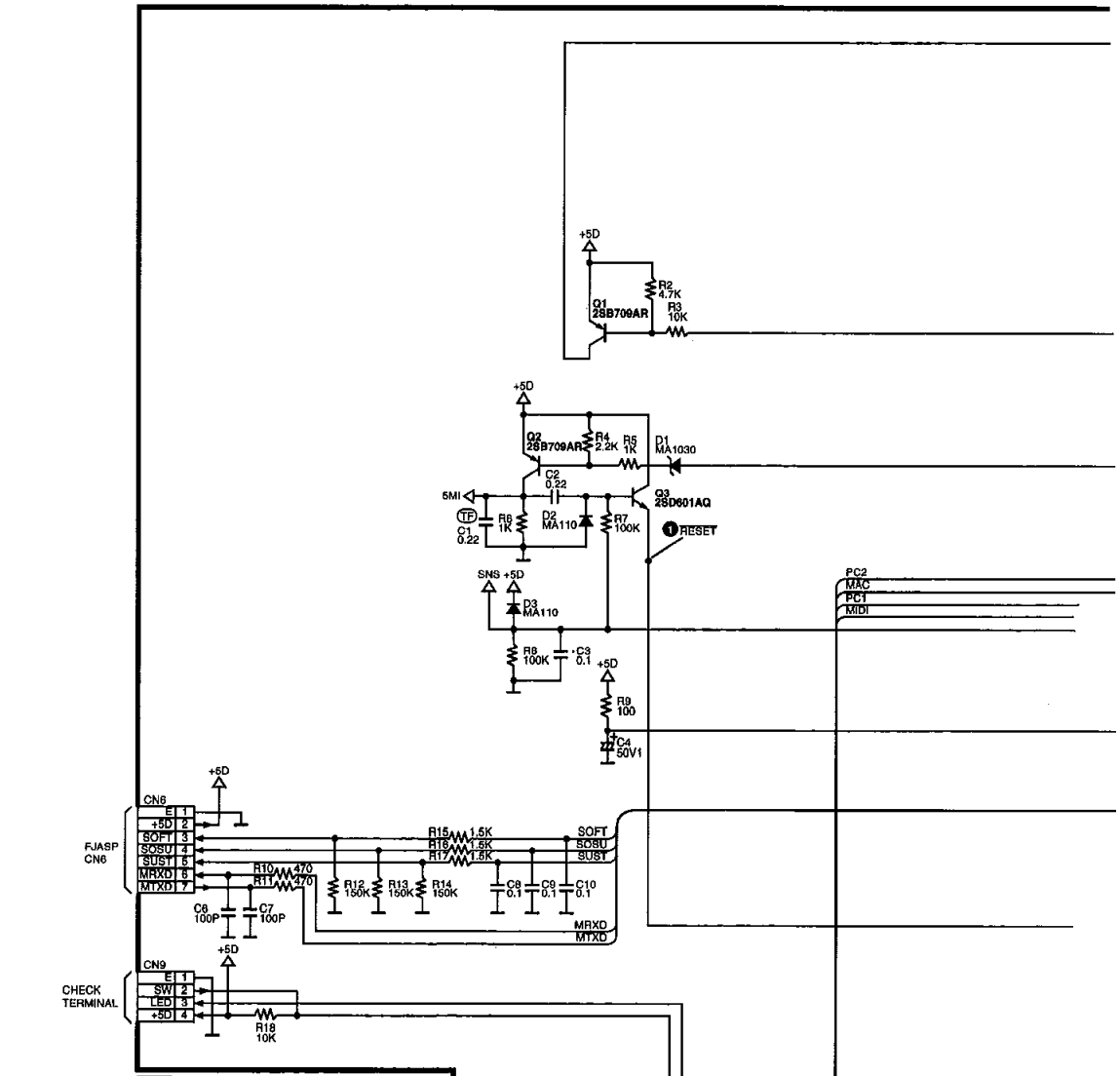
A MAIN P.C.B.(COMPONENT SIDE)



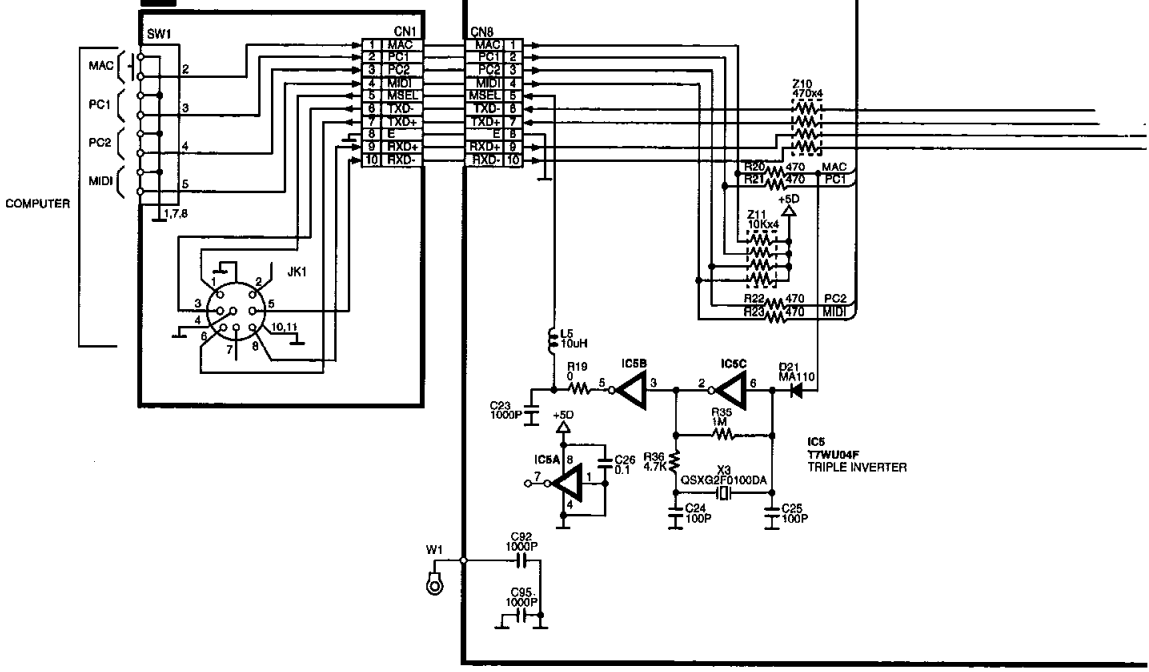
A MAIN P.C.B.(FOIL SIDE)

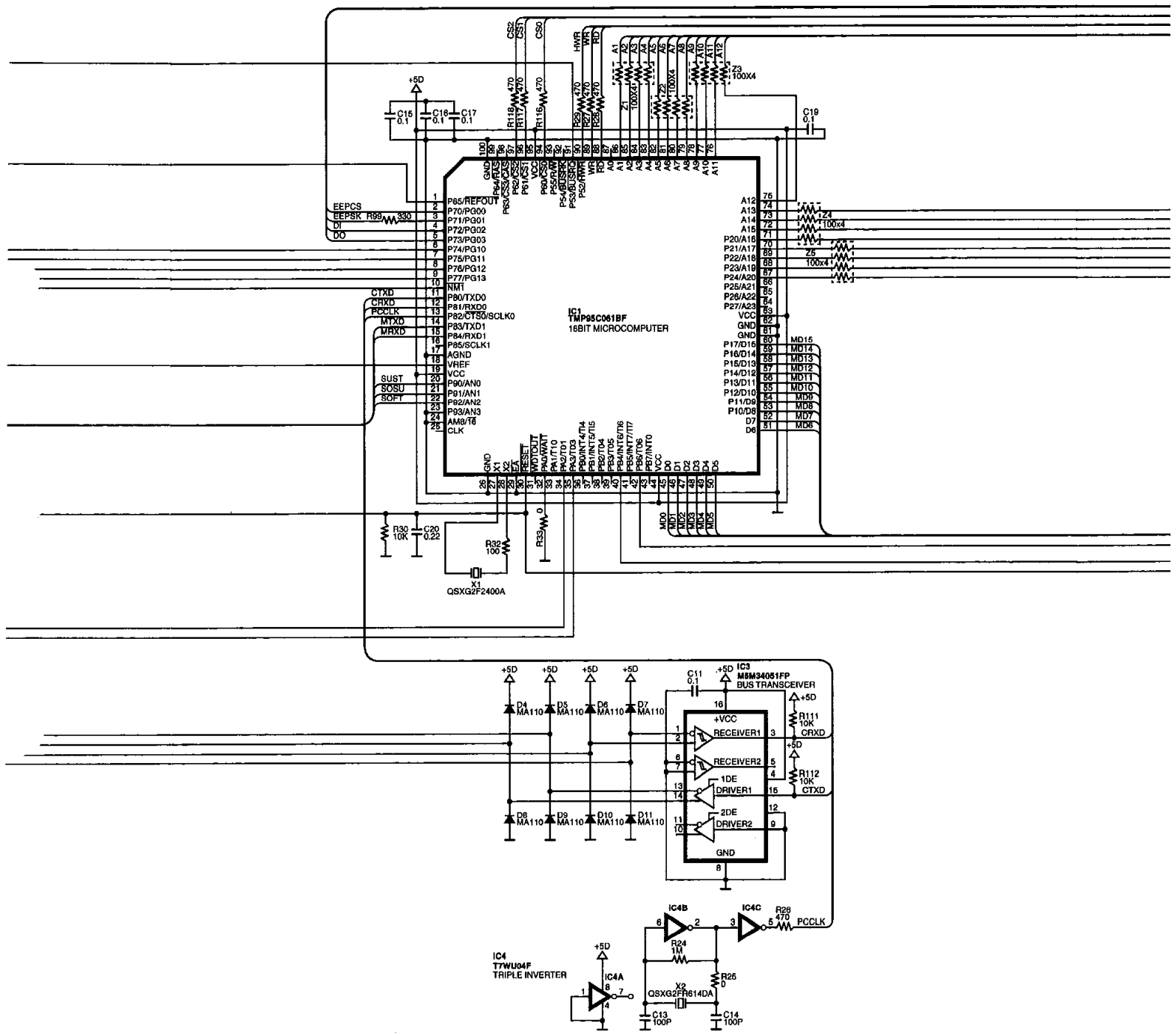


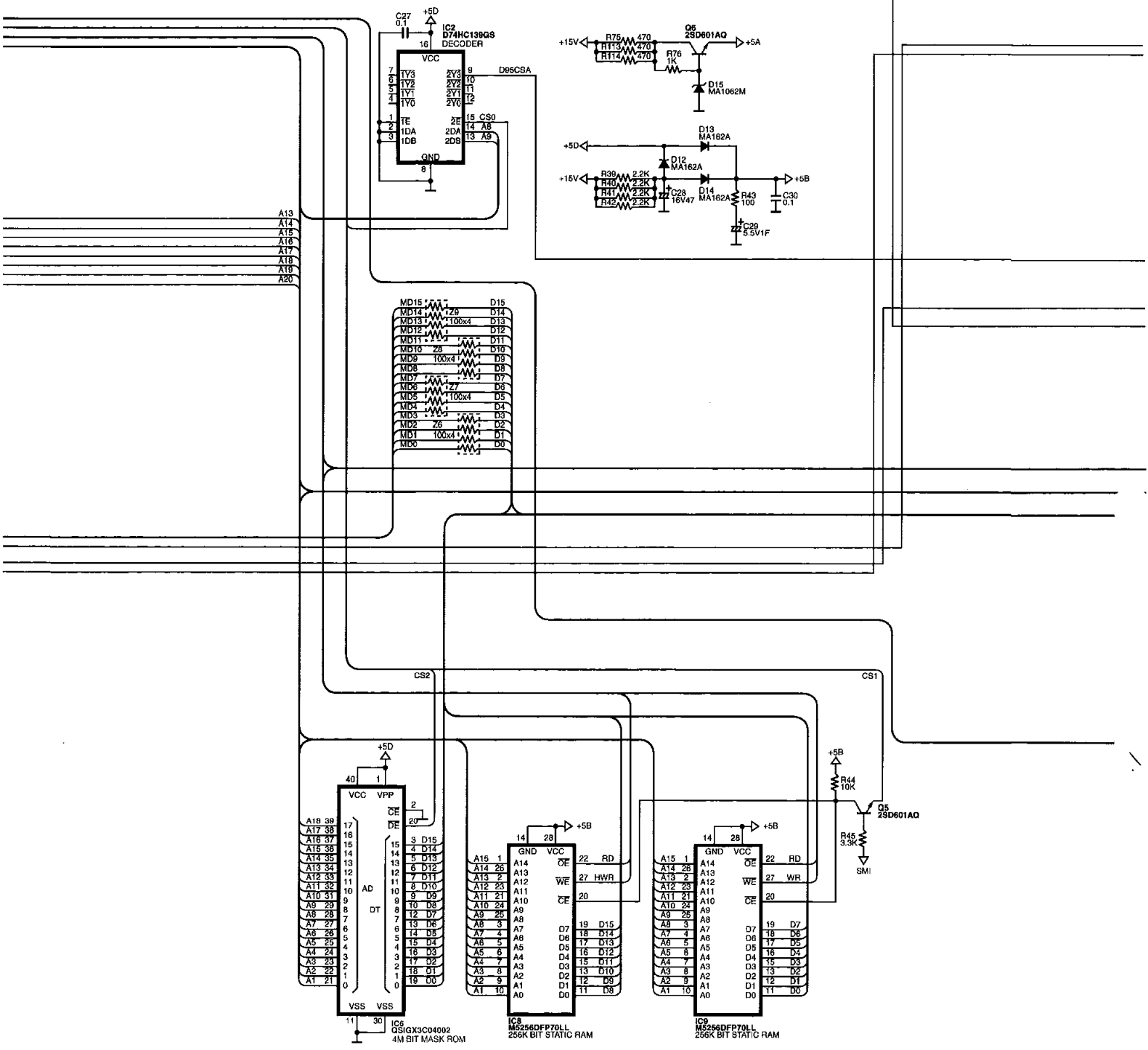
A MAIN CIRCUIT

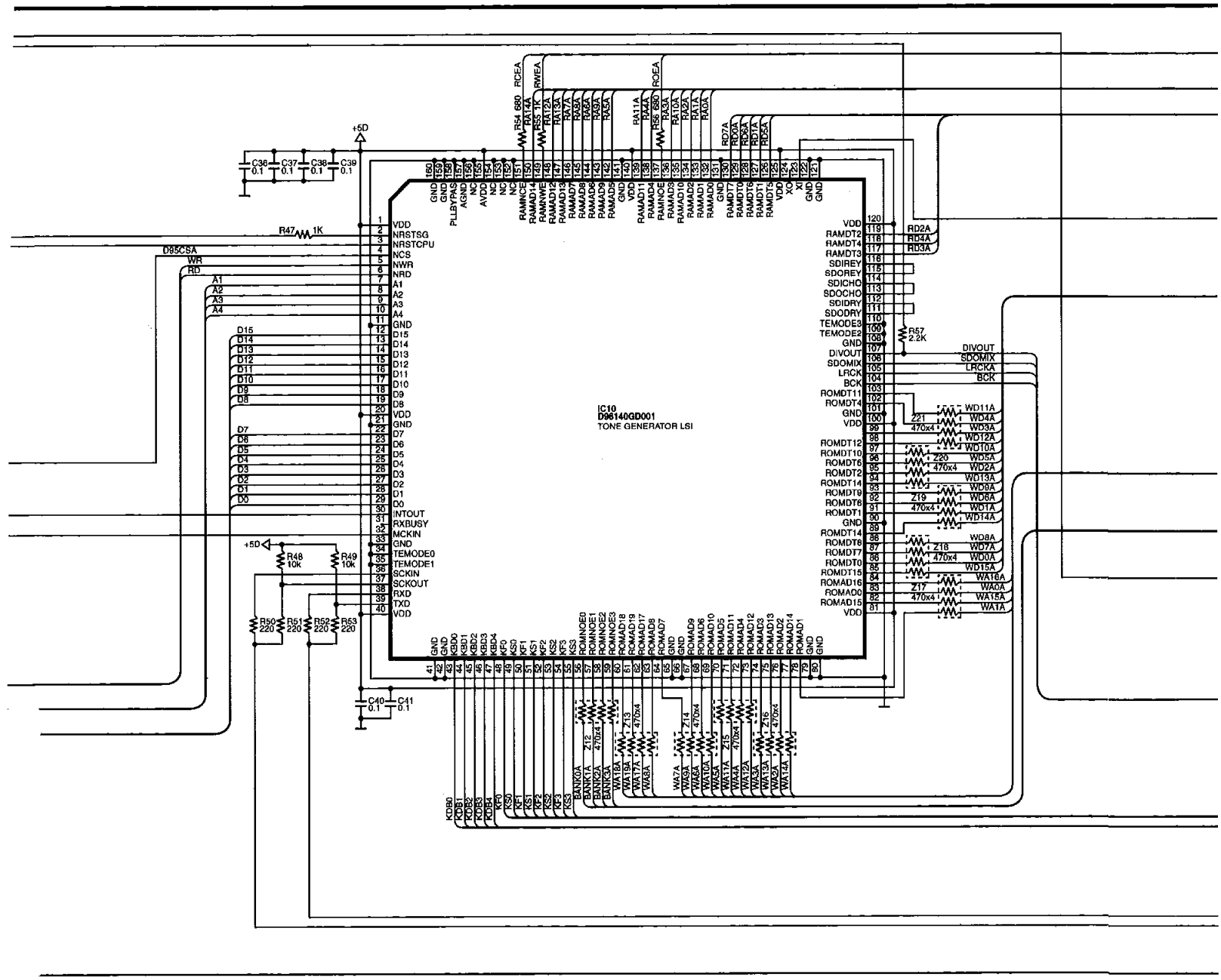


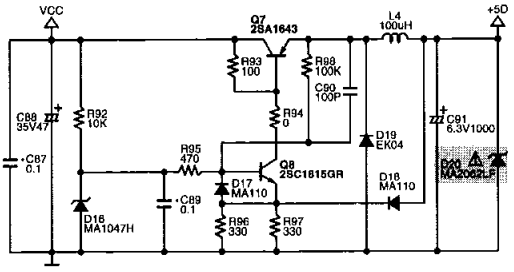
F COM CIRCUIT

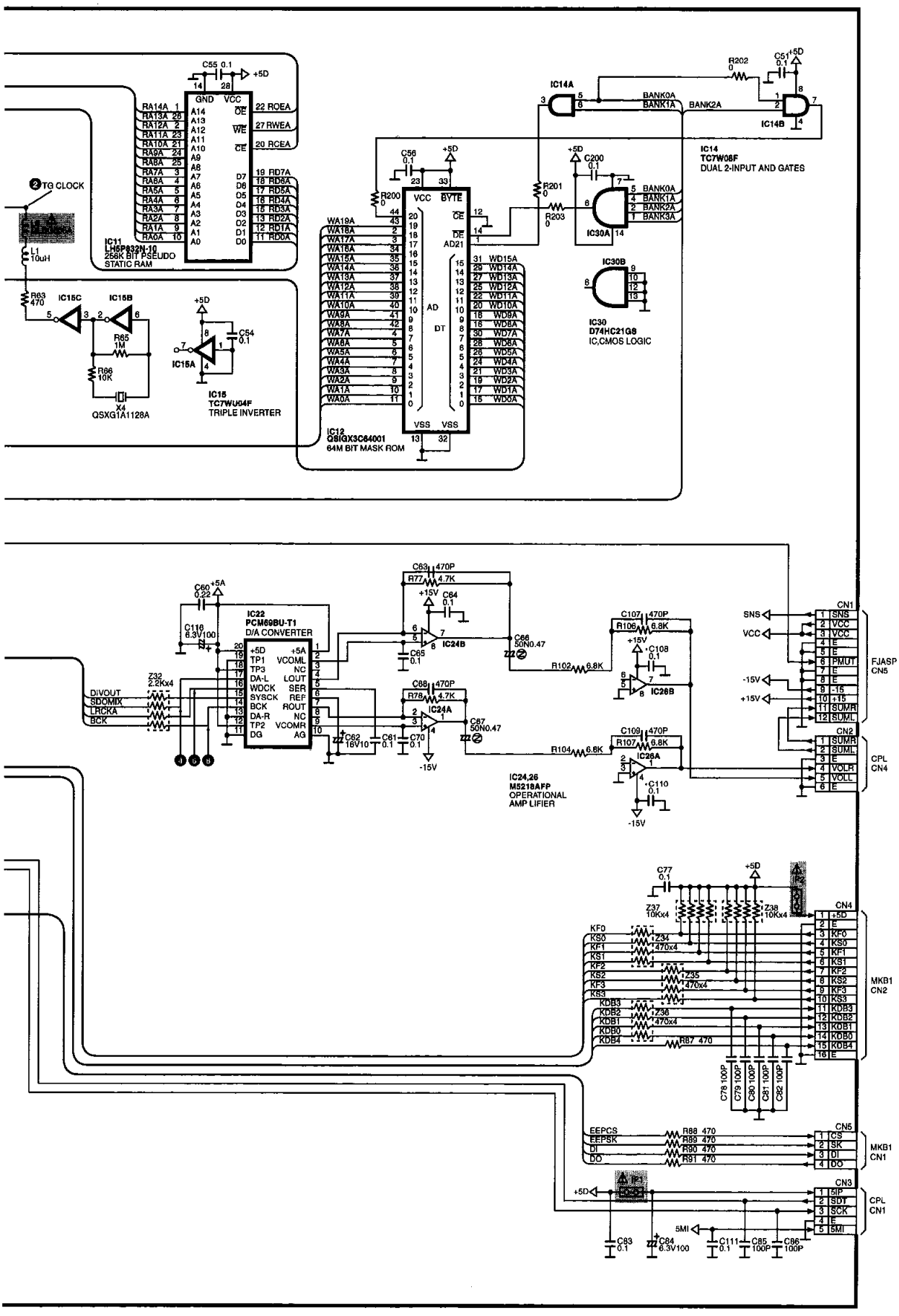


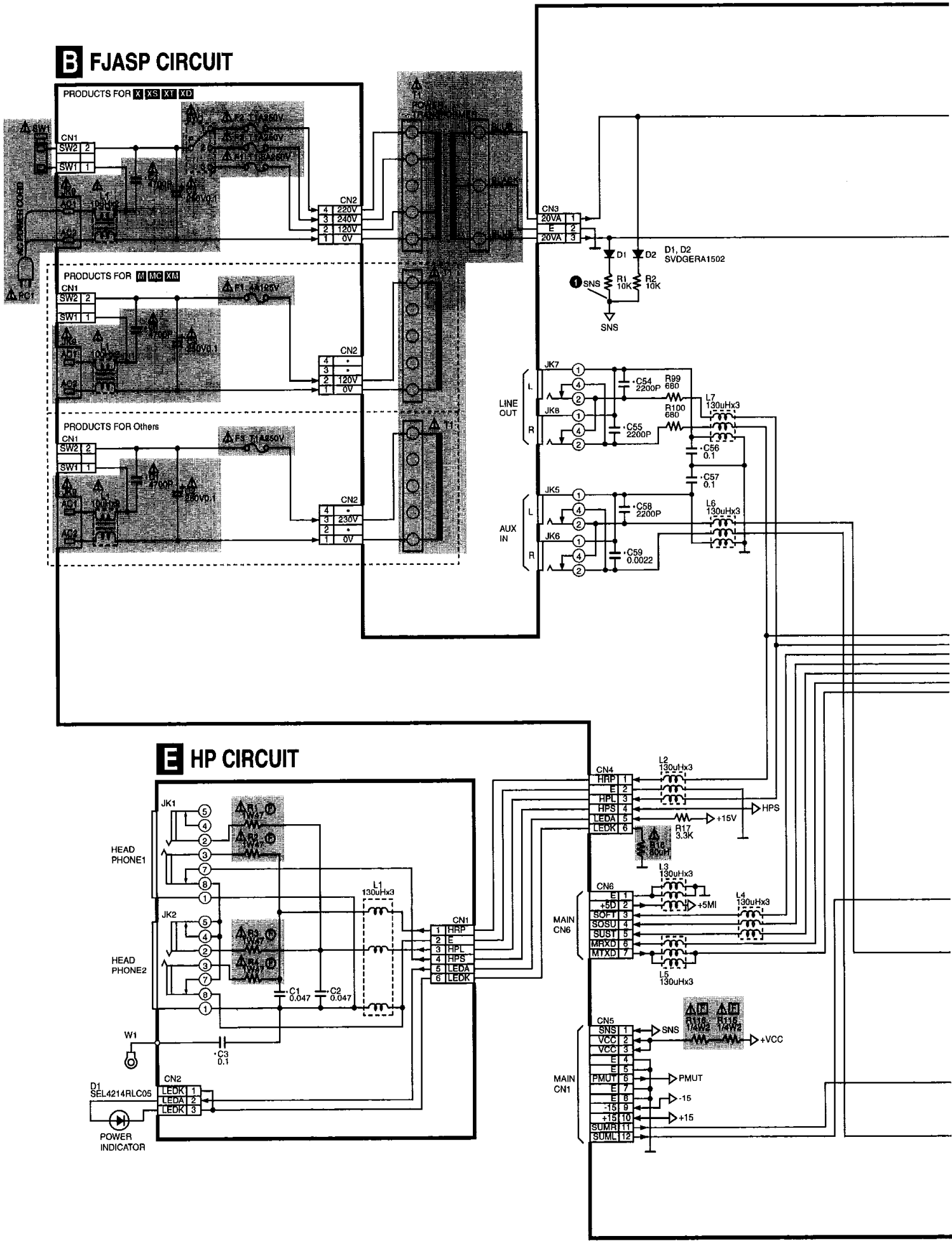

IC1
TMP95C061BF
16BIT MICROCOMPUTER
X1
QSXG2F2400A
IC3
M5M34051FP
BUS TRANSCEIVER
RECEIVER1
RECEIVER2
DRIVER1
DRIVER2
IC4
T7WU04F
TRIPLE INVERTER
IC4A
IC4B
IC4C
X2
QSXG2FR614DA
EEPCS
EEPSK
DI
DO
CTXD
CRXD
PCCLK
MTXD
MRXD
SUST
SOSU
SOFT
+5D
GND
+VCC
PCCLK
CRXD
CTXD

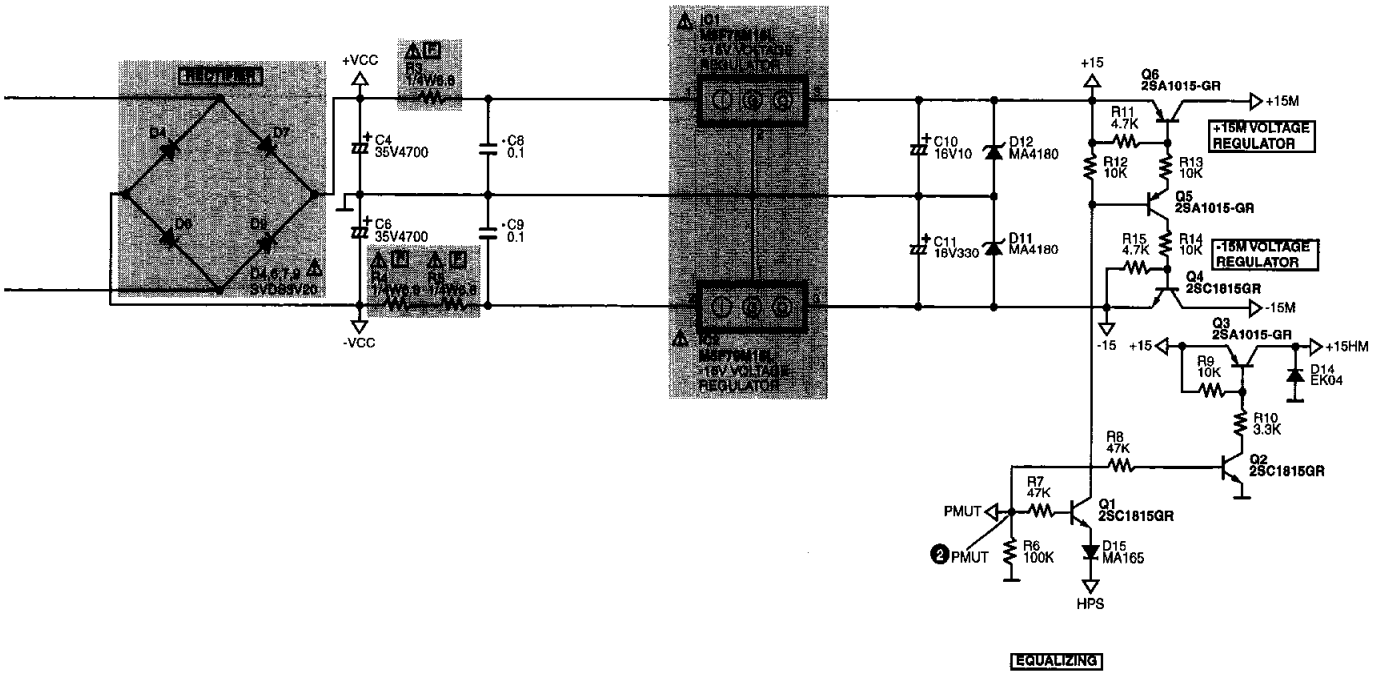

C27 0.1
+5D
IC2
D74HC139GS
DECODER
D95CSA
CS0
A13
A14
A15
A16
A17
A18
A19
A20
+15V
R75 470
R113 470
R114 470
Q6
2SD601AQ
+5A
R76 1K
D15
MA1062M
D13
MA162A
D12
MA162A
R39 2.2K
R40 2.2K
R41 2.2K
R42 2.2K
C28 16V47
D14
MA162A
R43 100
C30 0.1
C29 5.5V1F
+5B
MD15
MD14
MD13
MD12
MD11
MD10
MD9
MD8
MD7
MD6
MD5
MD4
MD3
MD2
MD1
MD0
Z9
Z8
Z7
Z6
100x4
D15
D14
D13
D12
D11
D10
D9
D8
D7
D6
D5
D4
D3
D2
D1
D0
CS2
CS1
+5D
VCC VPP
CE
OE
AD
DT
VSS VSS
IC8
GSIGX3C04002
4M BIT MASK ROM
+5B
GND VCC
RD
HWR
WR
IC8
M5256DFP70LL
256K BIT STATIC RAM
IC9
M5256DFP70LL
256K BIT STATIC RAM
R44 10K
Q5
2SD601AQ
R45 3.3K
SMI

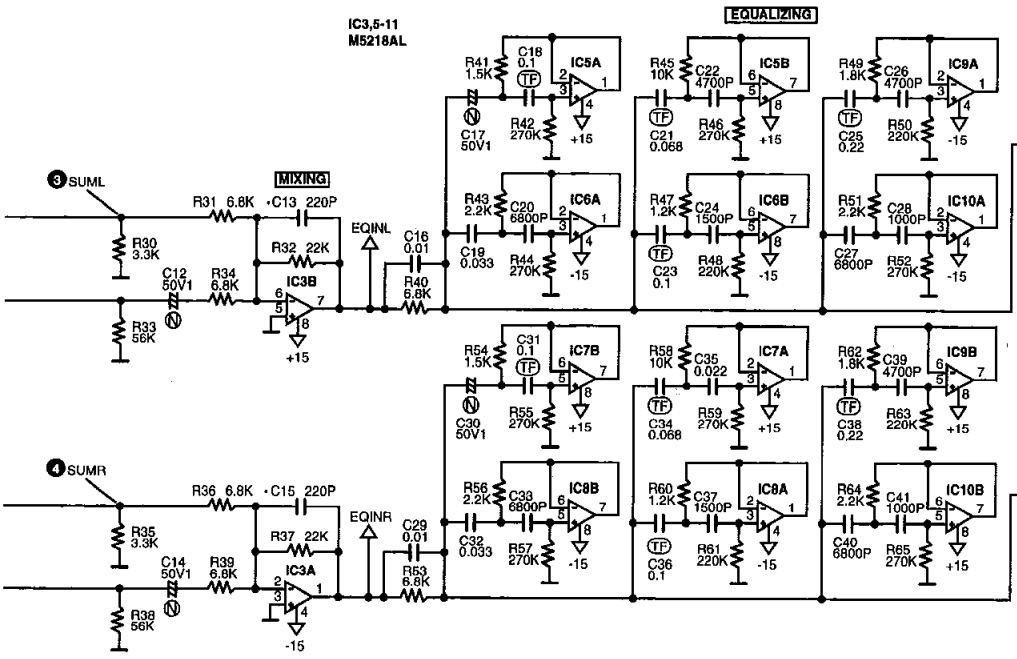

IC10
D98140GD001
TONE GENERATOR LSI

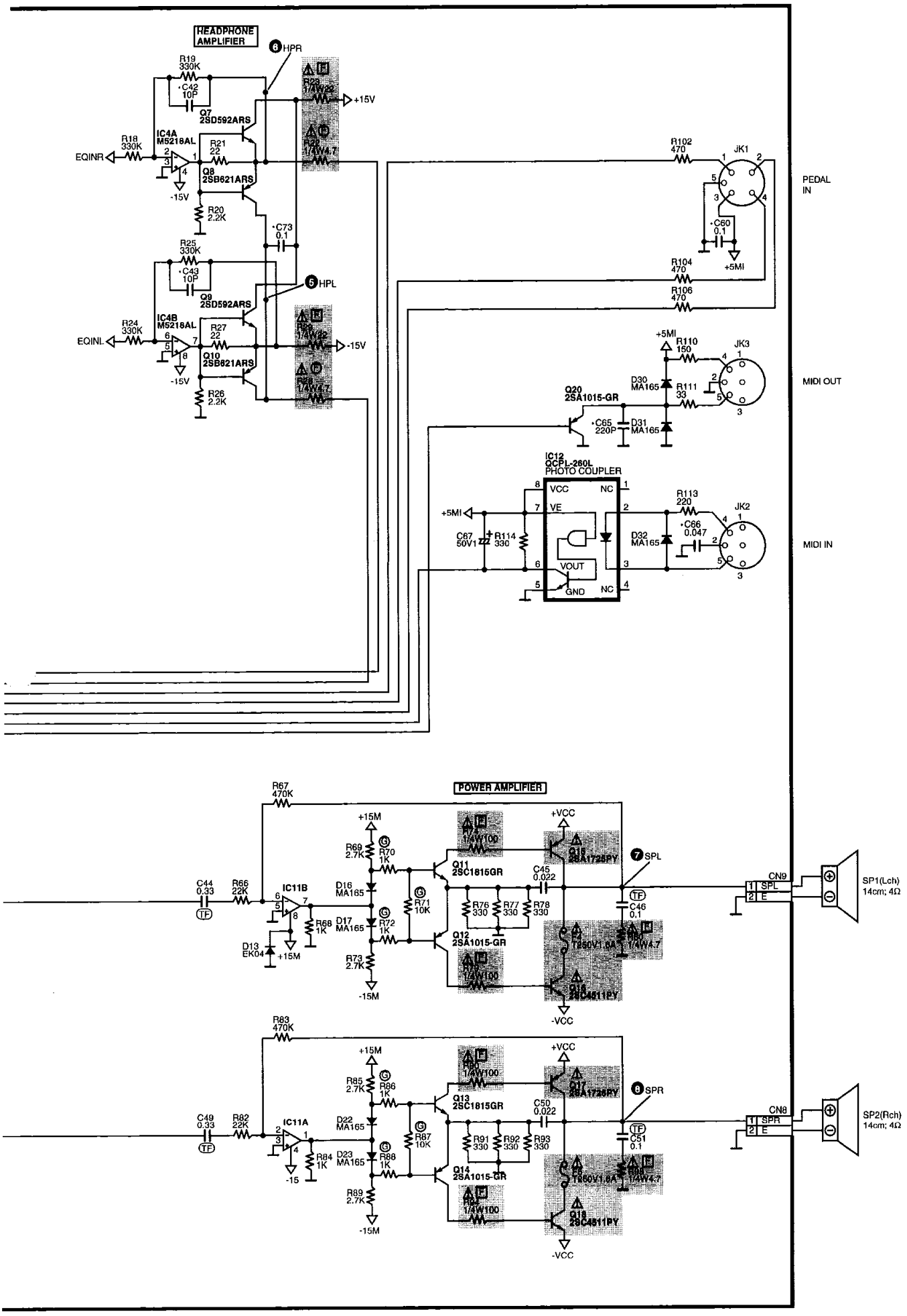

VCC
Q7
2SA1643
L4
100uH
+5D
R93
100
R88
100K
C90
100P
C88
35V47
R92
10K
R94
0
D19
EK04
C91
6.3V1000
C87
0.1
R95
470
Q8
2SC1815GR
D17
MA110
D16
MA110
C89
0.1
D16
MA1047H
R96
330
R97
330


IC11
LH5P832N-10
256K BIT PSEUDO
STATIC RAM
IC12
QSIGX3C64001
64M BIT MASK ROM
IC14
TC7W08F
DUAL 2-INPUT AND GATES
IC15
TC7WU04F
TRIPLE INVERTER
IC30
D74HC21G8
IC,CMOS LOGIC
IC22
PCM69BU-T1
D/A CONVERTER
IC24,26
M5218AFP
OPERATIONAL
AMP LIFIER
FJASP
CN5
CPL
CN4
MKB1
CN2
MKB1
CN1
CPL
CN1
TG CLOCK
QSXG1A1128A

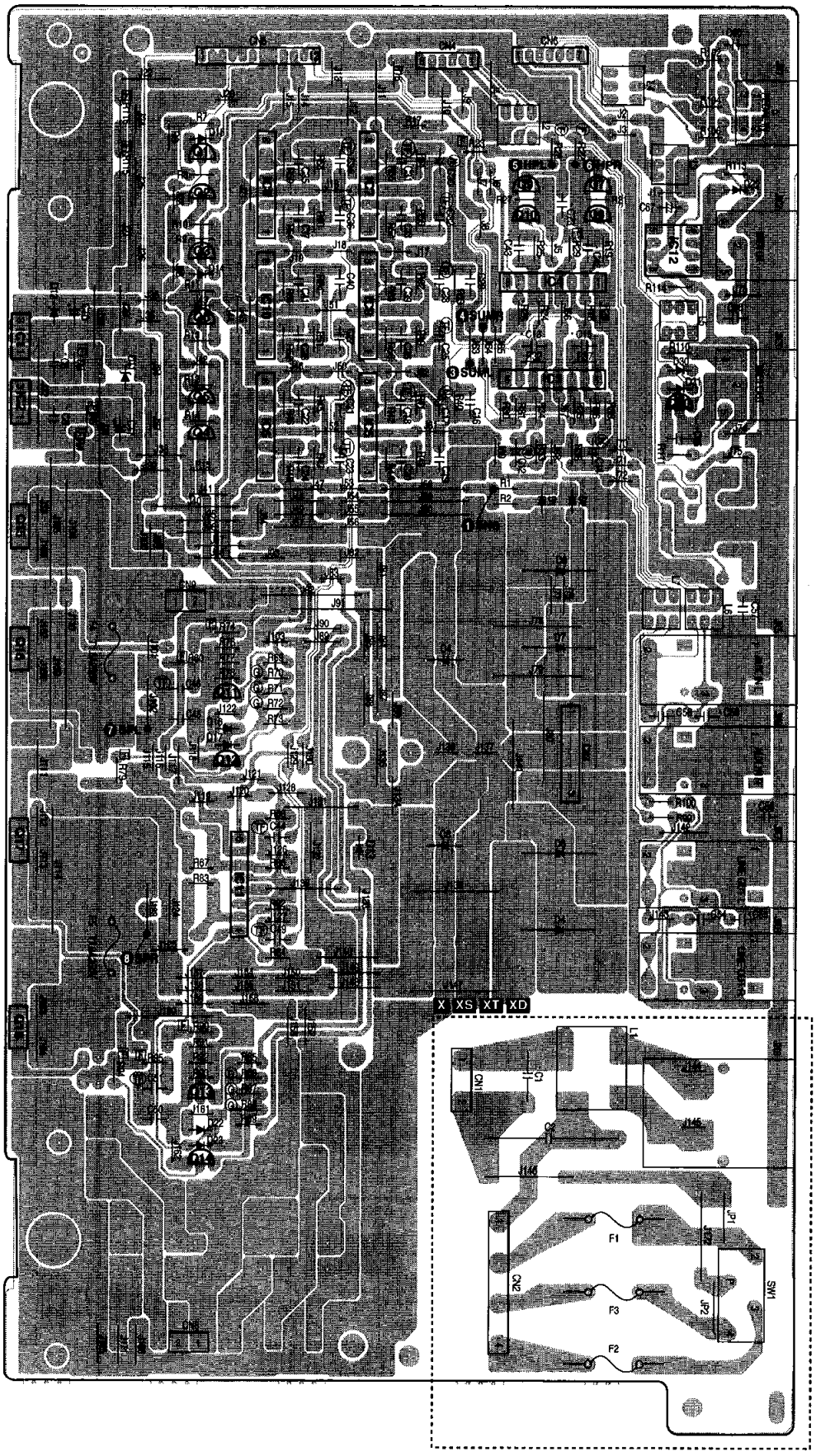

B FJASP CIRCUIT
PRODUCTS FOR X XS XT XD
PRODUCTS FOR M MC XM
PRODUCTS FOR Others
CN1
CN2
CN3
SW1
SW2
F1 4A/125V
F2 1A/250V
F3 T1A/250V
T1
RC1
220V
240V
120V
230V
0V
20VA
D1
D2
D1, D2
SVDGERA1502
SNS
R1
10K
R2
10K
JK7
JK8
JK5
JK6
LINE OUT
AUX IN
C54
2200P
C55
2200P
C56
0.1
C57
0.1
C58
2200P
C59
0.0022
R99
680
R100
680
L7
130uHx3
L6
130uHx3
E HP CIRCUIT
JK1
JK2
HEAD PHONE1
HEAD PHONE2
R1
1W47
R2
1W47
R3
1W47
R4
1W47
L1
130uHx3
C1
0.047
C2
0.047
C3
0.1
W1
D1
SEL4214RLC05
POWER INDICATOR
CN1
CN2
CN4
CN5
CN6
HRP
E
HPL
HPS
LEDA
LEDK
+15V
HPS
R17
3.3K
R18
100H
L2
130uHx3
L3
130uHx3
L4
130uHx3
L5
130uHx3
+5D
SOFT
SOSU
SUST
MRXD
MTXD
+5MI
MAIN CN6
SNS
VCC
PMUT
-15
+15
SUMR
SUML
+VCC
MAIN CN1
R116
1/4W2
R118
1/4W2


RECTIFIER
D4
D7
D8
D9
+VCC
-VCC
C4 35V4700
C6 35V4700
C8 0.1
C9 0.1
IC1
M5F78M15L
+15V VOLTAGE REGULATOR
IC2
M5F79M15L
-15V VOLTAGE REGULATOR
C10 16V10
C11 16V330
D12 MA4180
D11 MA4180
+15
-15
Q6 2SA1015-GR
+15M
R11 4.7K
R12 10K
R13 10K
+15M VOLTAGE REGULATOR
Q5 2SA1015-GR
R15 4.7K
R14 10K
-15M VOLTAGE REGULATOR
Q4 2SC1815GR
-15M
Q3 2SA1015-GR
+15HM
R9 10K
D14 EK04
R10 3.3K
R8 47K
Q2 2SC1815GR
R7 47K
PMUT
Q1 2SC1815GR
R6 100K
D15 MA165
HPS
EQUALIZING


IC3,5-11
M5218AL
EQUALIZING
MIXING
3 SUML
4 SUMR
EQINL
EQINR
R30 3.3K
R31 6.8K
C13 220P
R32 22K
C12 50V1
R34 6.8K
IC3B
R33 56K
C16 0.01
R40 6.8K
R35 3.3K
R36 6.8K
C15 220P
R37 22K
C14 50V1
R39 6.8K
IC3A
R38 56K
C29 0.01
R53 6.8K
R41 1.5K
C18 0.1
IC5A
C17 50V1
R42 270K
R43 2.2K
C20 6800P
IC6A
C19 0.033
R44 270K
R45 10K
C22 4700P
IC5B
C21 0.068
R46 270K
R47 1.2K
C24 1500P
IC6B
C23 0.1
R48 220K
R49 1.8K
C26 4700P
IC9A
C25 0.22
R50 220K
R51 2.2K
C28 1000P
IC10A
C27 6800P
R52 270K
R54 1.5K
C31 0.1
IC7B
C30 50V1
R55 270K
R56 2.2K
C33 6800P
IC8B
C32 0.033
R57 270K
R58 10K
C35 0.022
IC7A
C34 0.068
R59 270K
R60 1.2K
C37 1500P
IC8A
C36 0.1
R61 220K
R62 1.8K
C39 4700P
IC9B
C38 0.22
R63 220K
R64 2.2K
C41 1000P
IC10B
C40 6800P
R65 270K
+15
-15


HEADPHONE AMPLIFIER
8 HPR
R19 330K
C42 10P
Q7 2SD592ARS
IC4A M5218AL
R18 330K
EQINR
R21 22
Q8 2SB621ARS
R20 2.2K
C73 0.1
R25 330K
C43 10P
5 HPL
Q9 2SD592ARS
IC4B M5218AL
R24 330K
EQINL
R27 22
Q10 2SB621ARS
R26 2.2K
+15V
-15V
R102 470
JK1
PEDAL IN
C60 0.1
+5MI
R104 470
R106 470
+5MI
R110 150
JK3
D30 MA165
R111 33
MIDI OUT
Q20 2SA1015-GR
C65 220P
D31 MA165
IC12 OCPL-260L PHOTO COUPLER
VCC
NC
VE
VOUT
GND
C67 50V1
R114 330
R113 220
JK2
C66 0.047
D32 MA165
MIDI IN
POWER AMPLIFIER
R67 470K
+15M
R69 2.7K
R70 1K
Q11 2SC1815GR
+VCC
Q15 2SA1726PY
7 SPL
C45 0.022
C44 0.33
R66 22K
IC11B
D16 MA165
D17 MA165
R71 10K
R72 1K
R68 1K
D13 EK04
+15M
R76 330
R77 330
R78 330
Q12 2SA1015-GR
C46 0.1
T250V1.6A
Q16 2SC4811PY
R73 2.7K
-15M
-VCC
CN9
SPL
E
SP1(Lch) 14cm; 4Ω
R83 470K
+15M
R85 2.7K
R86 1K
Q13 2SC1815GR
+VCC
Q17 2SA1726PY
8 SPR
C50 0.022
C49 0.33
R82 22K
IC11A
D22 MA165
D23 MA165
R87 10K
R88 1K
R84 1K
-15
R91 330
R92 330
R93 330
Q14 2SA1015-GR
C51 0.1
T250V1.6A
Q18 2SC4811PY
R89 2.7K
-15M
-VCC
CN8
SPR
E
SP2(Rch) 14cm; 4Ω

B FJASP P.C.B.

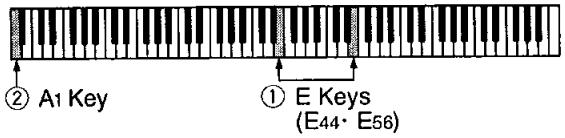


■ Measuring Condition of FJASP P.C.B.

Check Point ❸~❽

Set to the self-diagnostic mode followings.

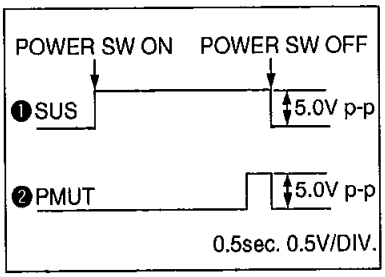
- While pressing two E keys (①) simultaneously, turn on the power switch.
- SOUND ..... CONCERT GRAND
- Main Volume ..... MAX
- Keyboard ..... A_1 (②)



Check Point ❶, ❷

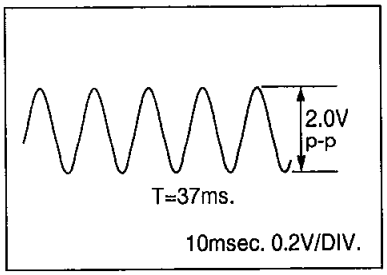
Set the initial setting mode (Refer to page I-6)

❶ SNS, ❷ PMUT

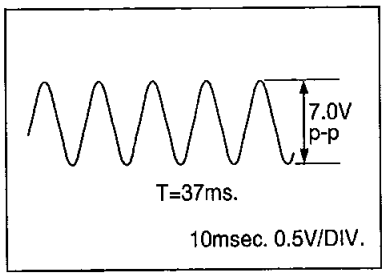


• Power SW ..... ON → OFF

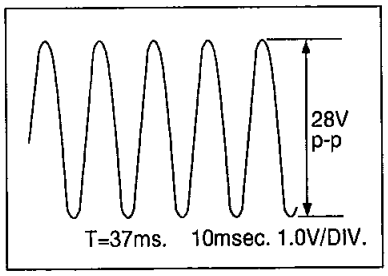
❸ SUML, ❹ SUMR



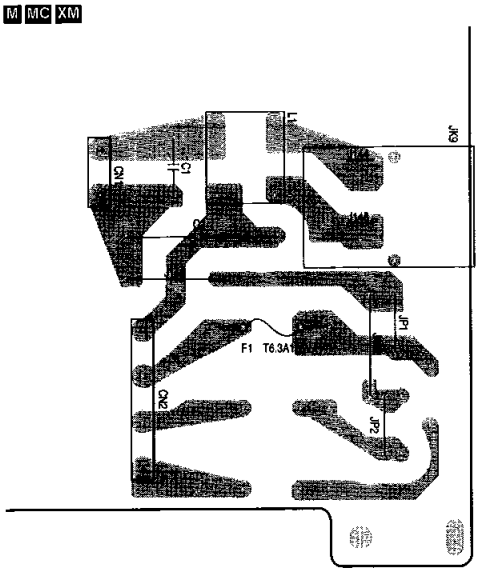
❺ HPL, ❻ HPR



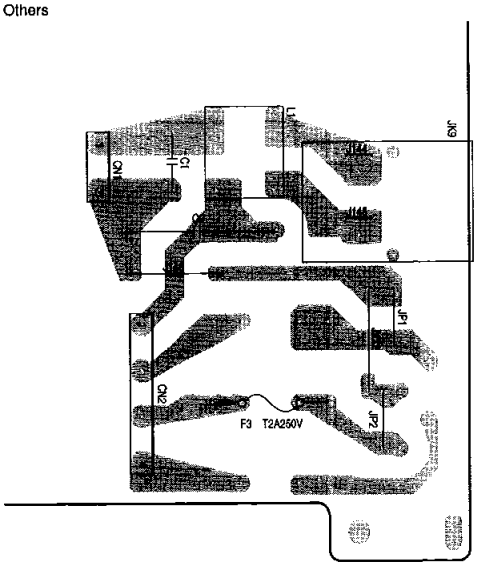
❼ SPL, ❽ SPR



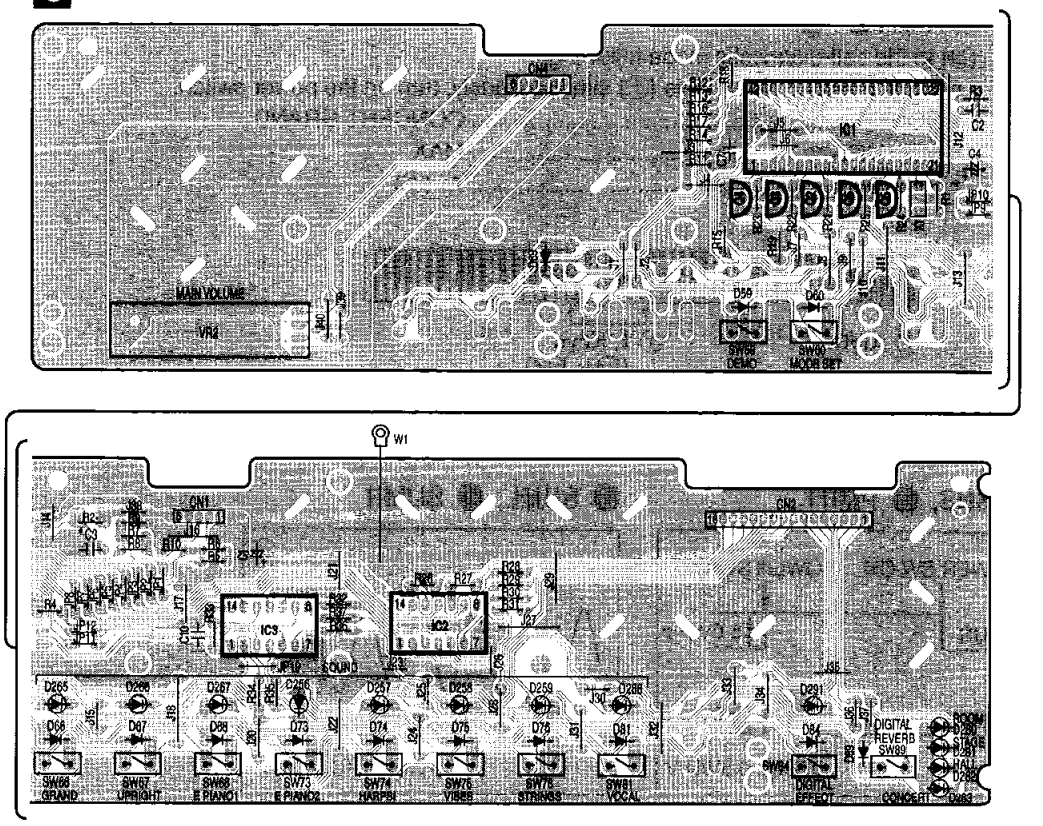
M MC XM



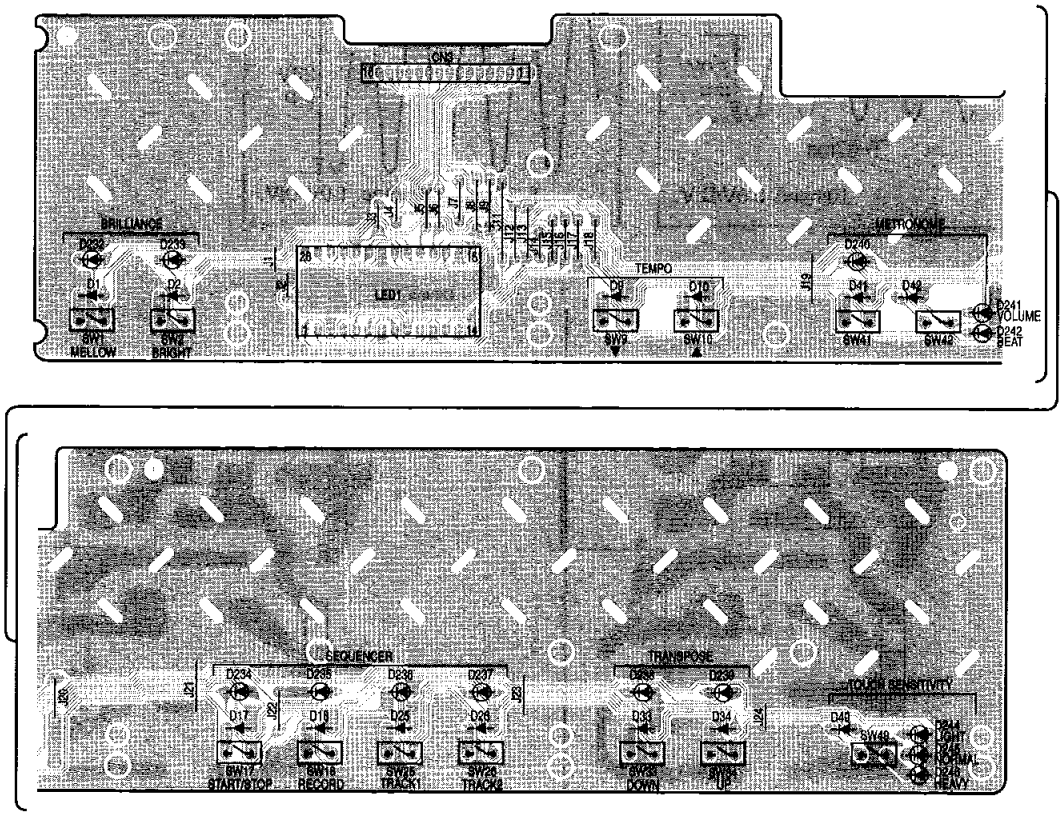
Others



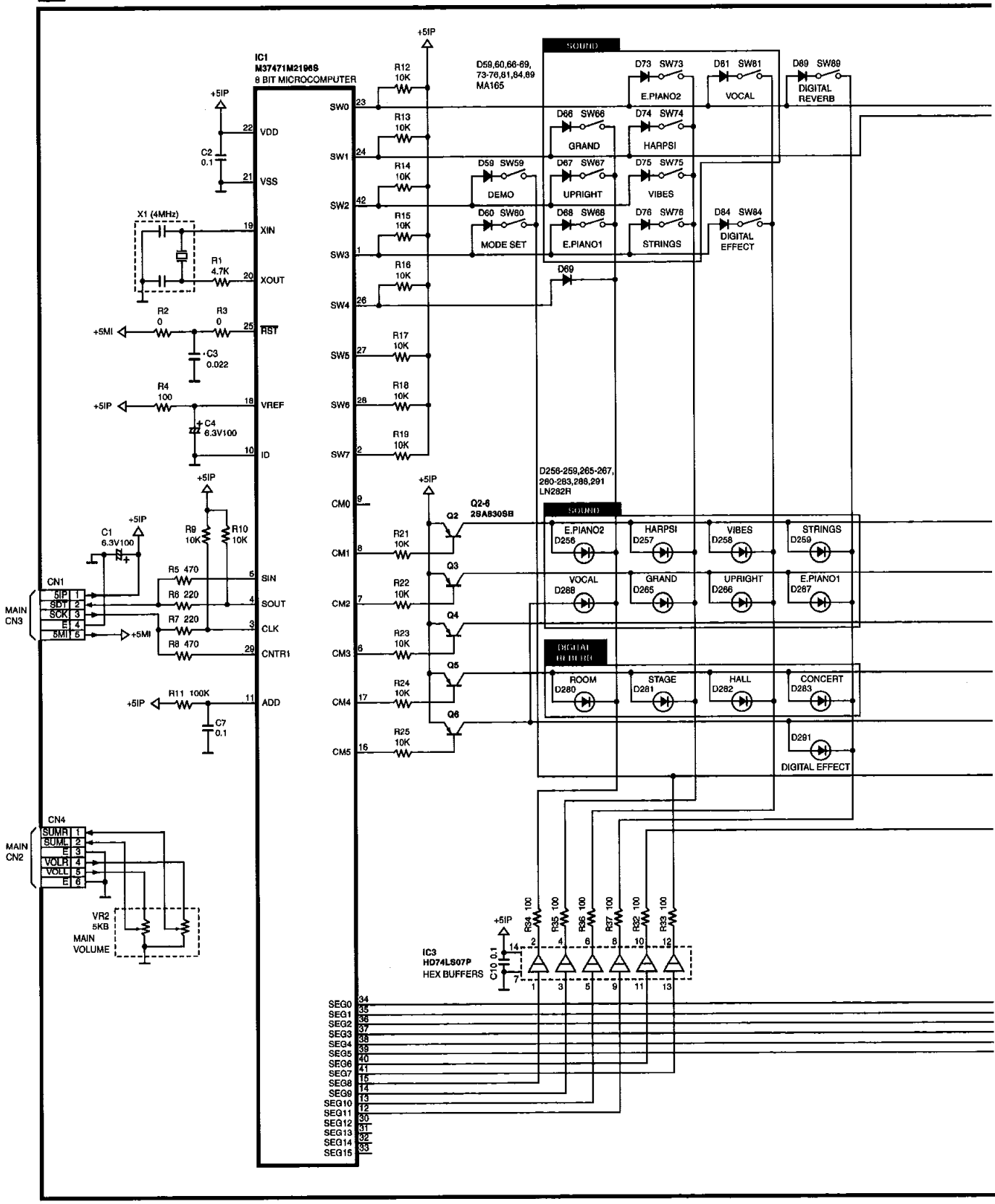
C CPL P.C.B.



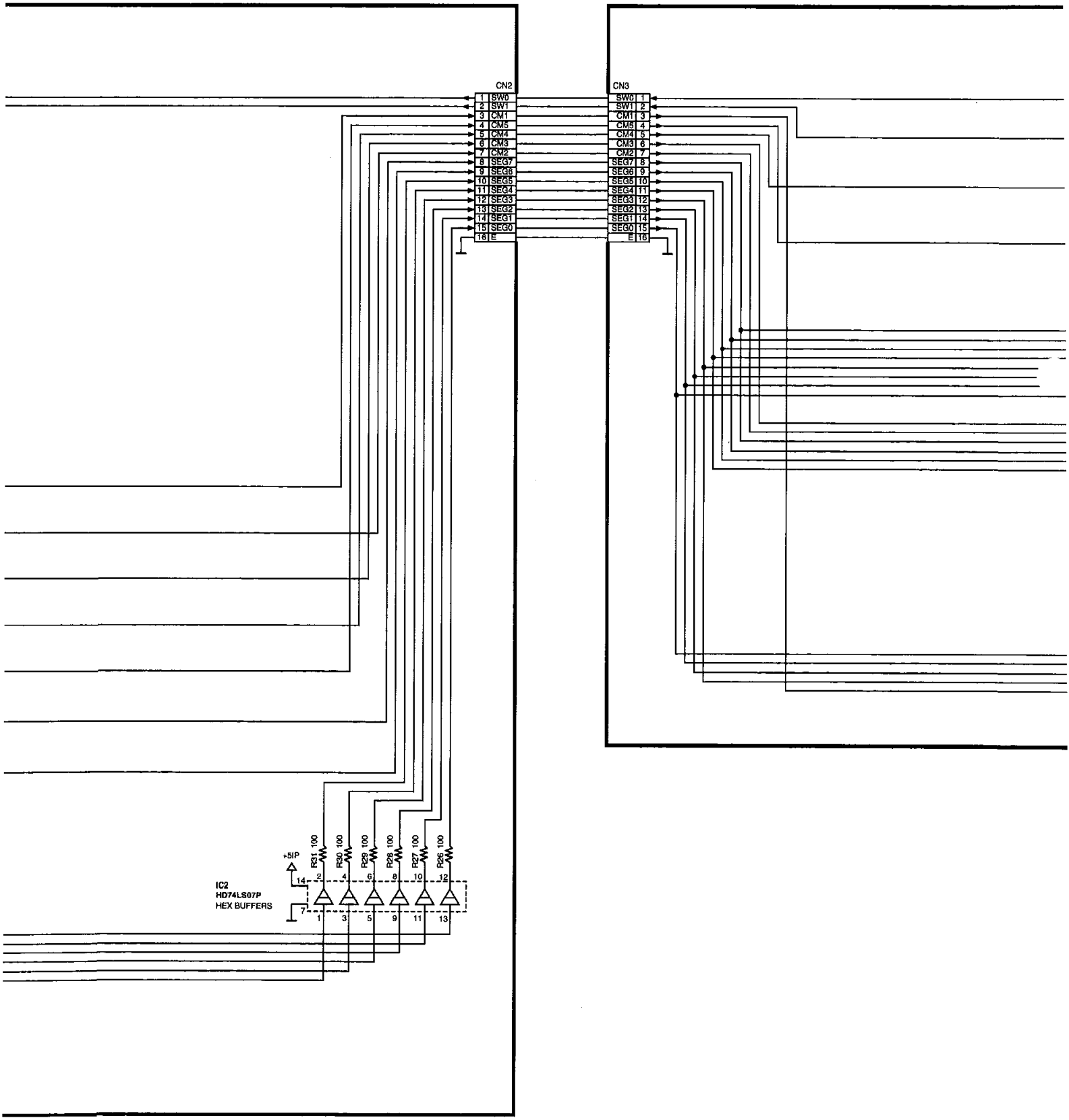
D CPR P.C.B.

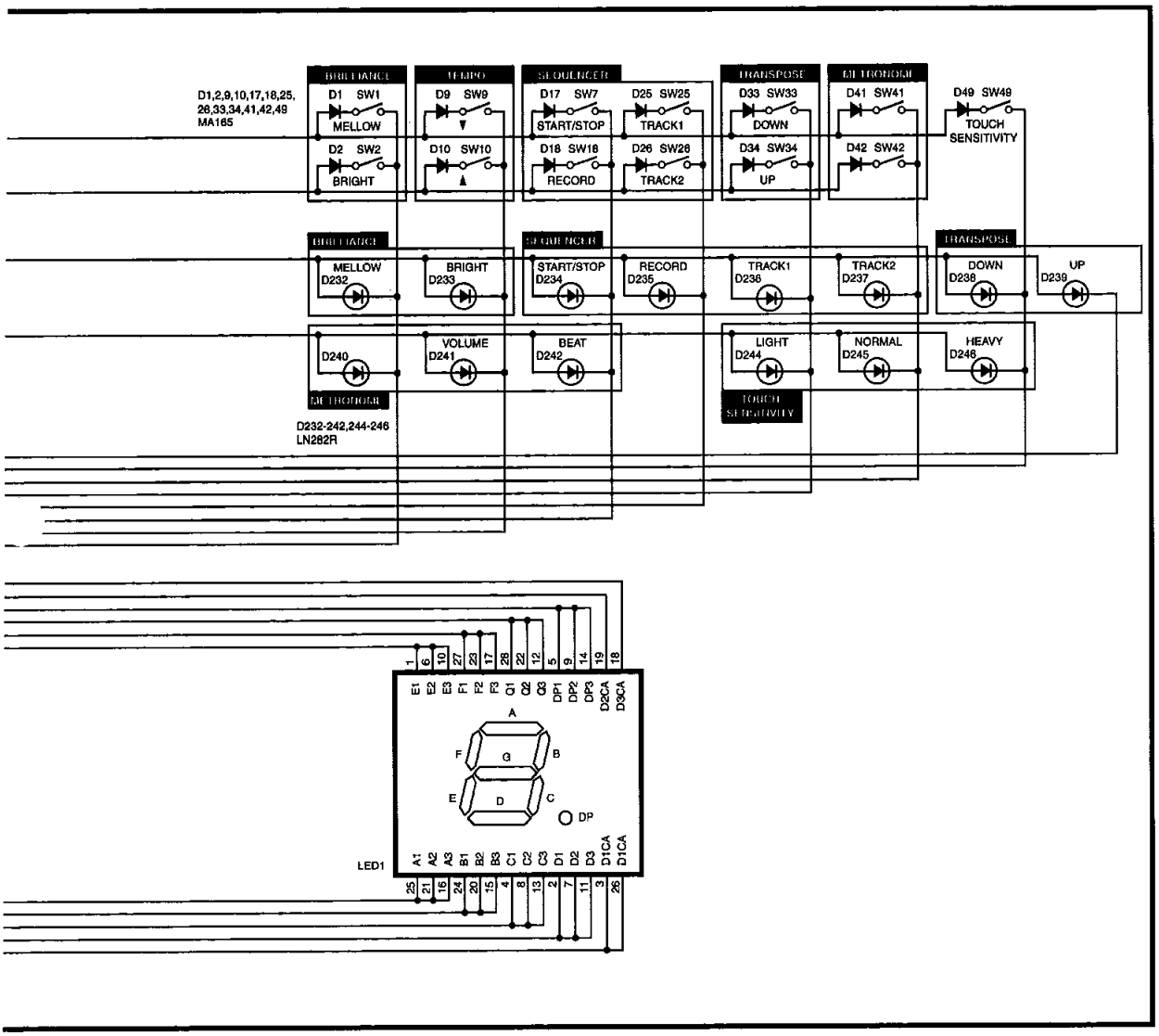


C CPL CIRCUIT

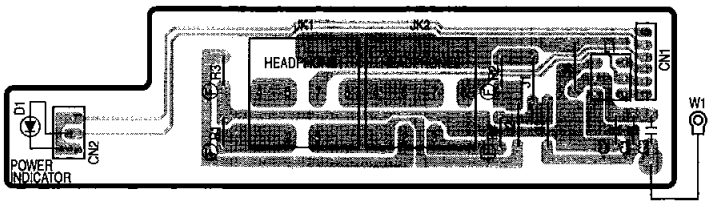


D CPR CIRCUIT

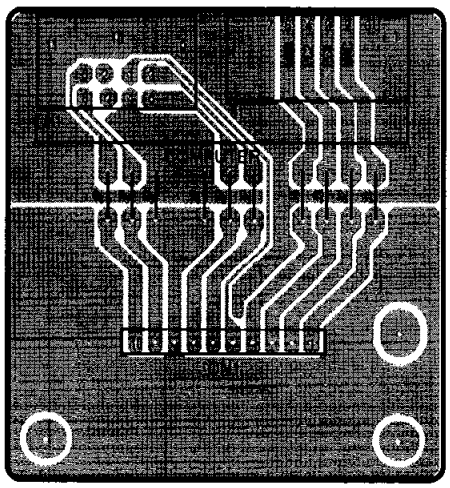



D1,2,8,10,17,18,25,
26,33,34,41,42,49
MA165
D1 SW1
MELLOW
D2 SW2
BRIGHT
D9 SW9
D10 SW10
D17 SW7
START/STOP
D18 SW18
RECORD
D25 SW25
TRACK1
D26 SW28
TRACK2
D33 SW33
DOWN
D34 SW34
UP
D41 SW41
D42 SW42
D49 SW49
TOUCH
SENSITIVITY
MELLOW
D232
BRIGHT
D233
START/STOP
D234
RECORD
D235
TRACK1
D236
TRACK2
D237
DOWN
D238
UP
D239
D240
VOLUME
D241
BEAT
D242
LIGHT
D244
NORMAL
D245
HEAVY
D246
D232-242,244-246
LN282R
LED1
E1 E2 E3 F1 F2 F3 G1 G2 G3 DP1 DP2 DP3 D2CA D3CA
A1 A2 A3 B1 B2 B3 C1 C2 C3 D1 D2 D3 D1CA D1CA
A
B
C
D
E
F
G
DP

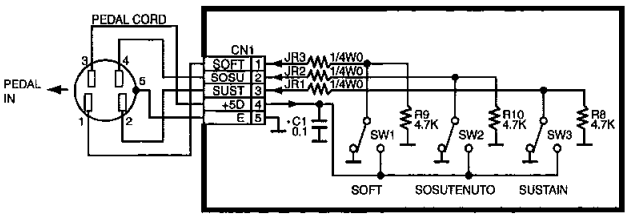
E HP P.C.B.



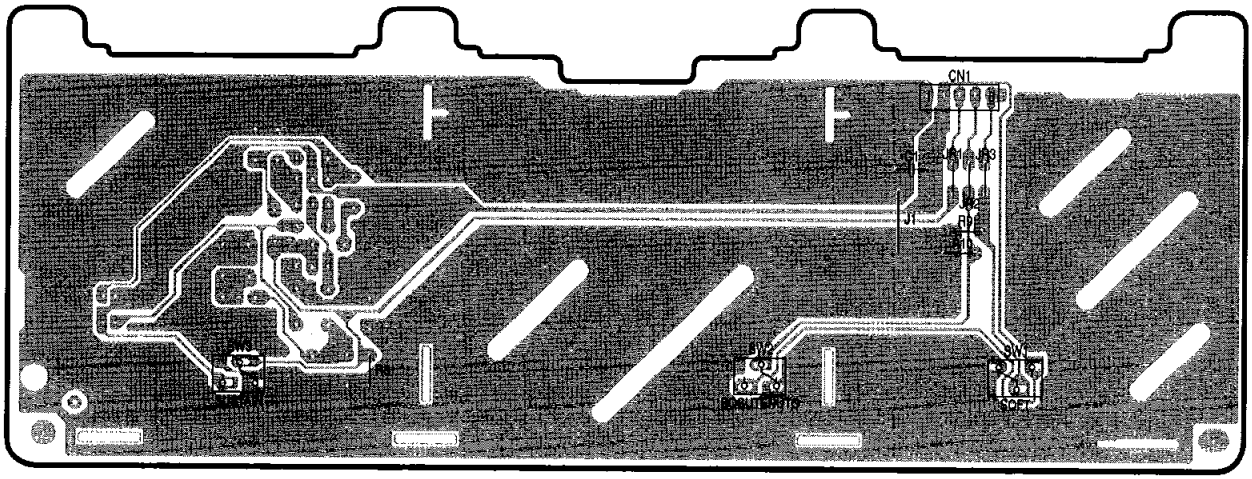
F COM P.C.B.



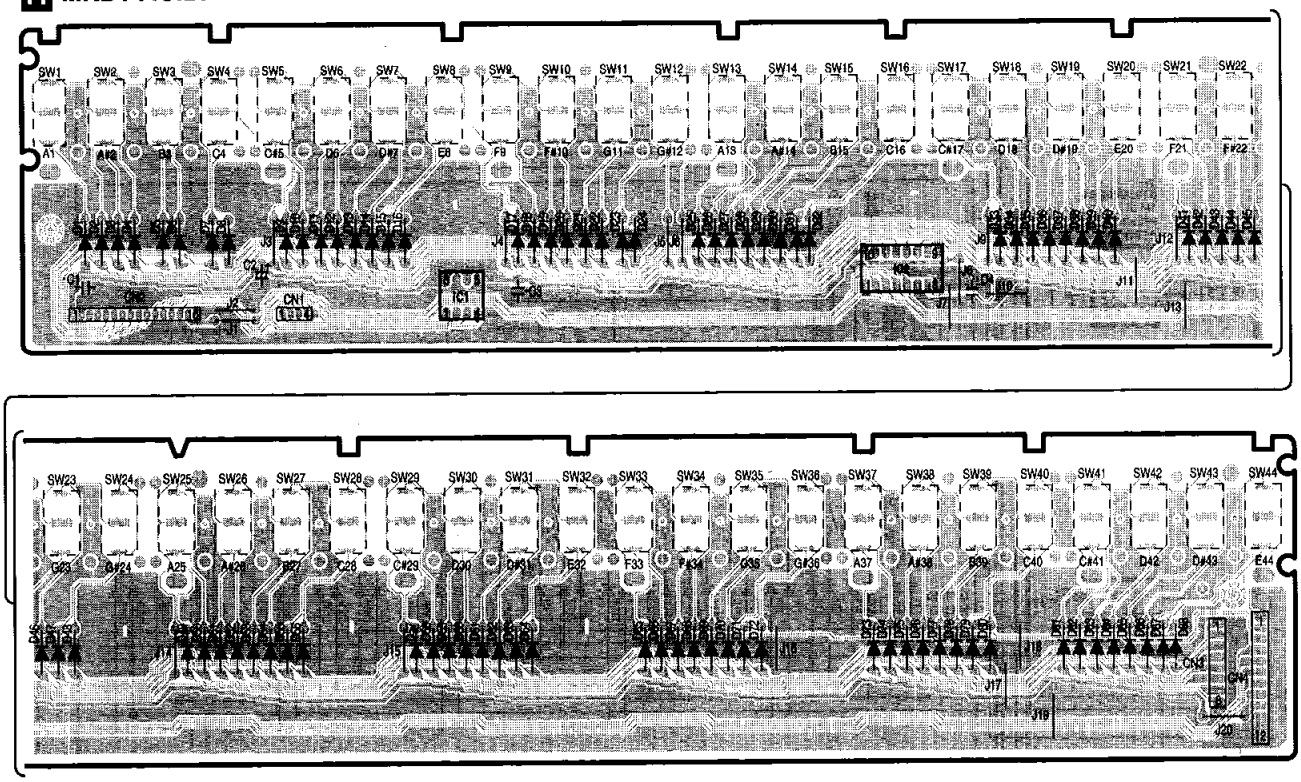
G PKB CIRCUIT



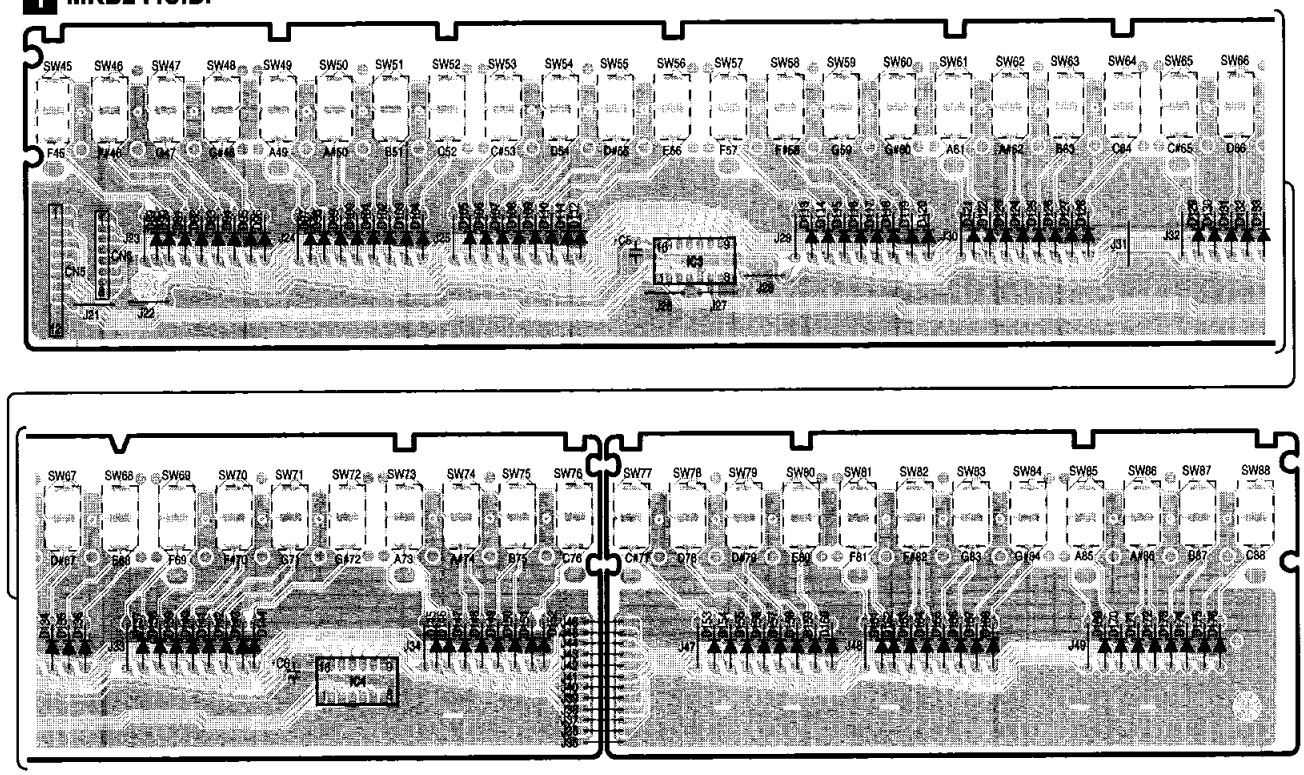
G PKB P.C.B.



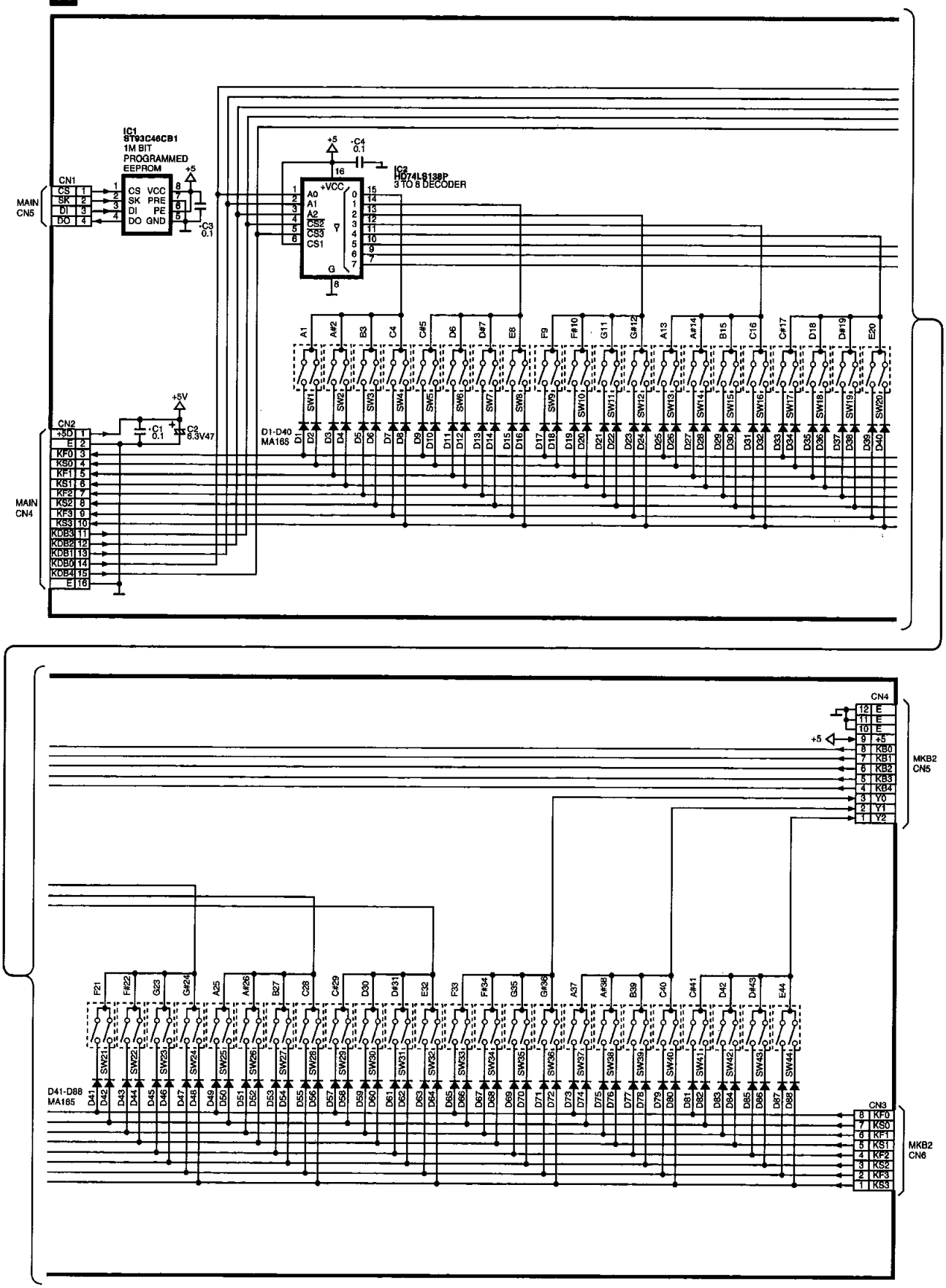
H MKB1 P.C.B.



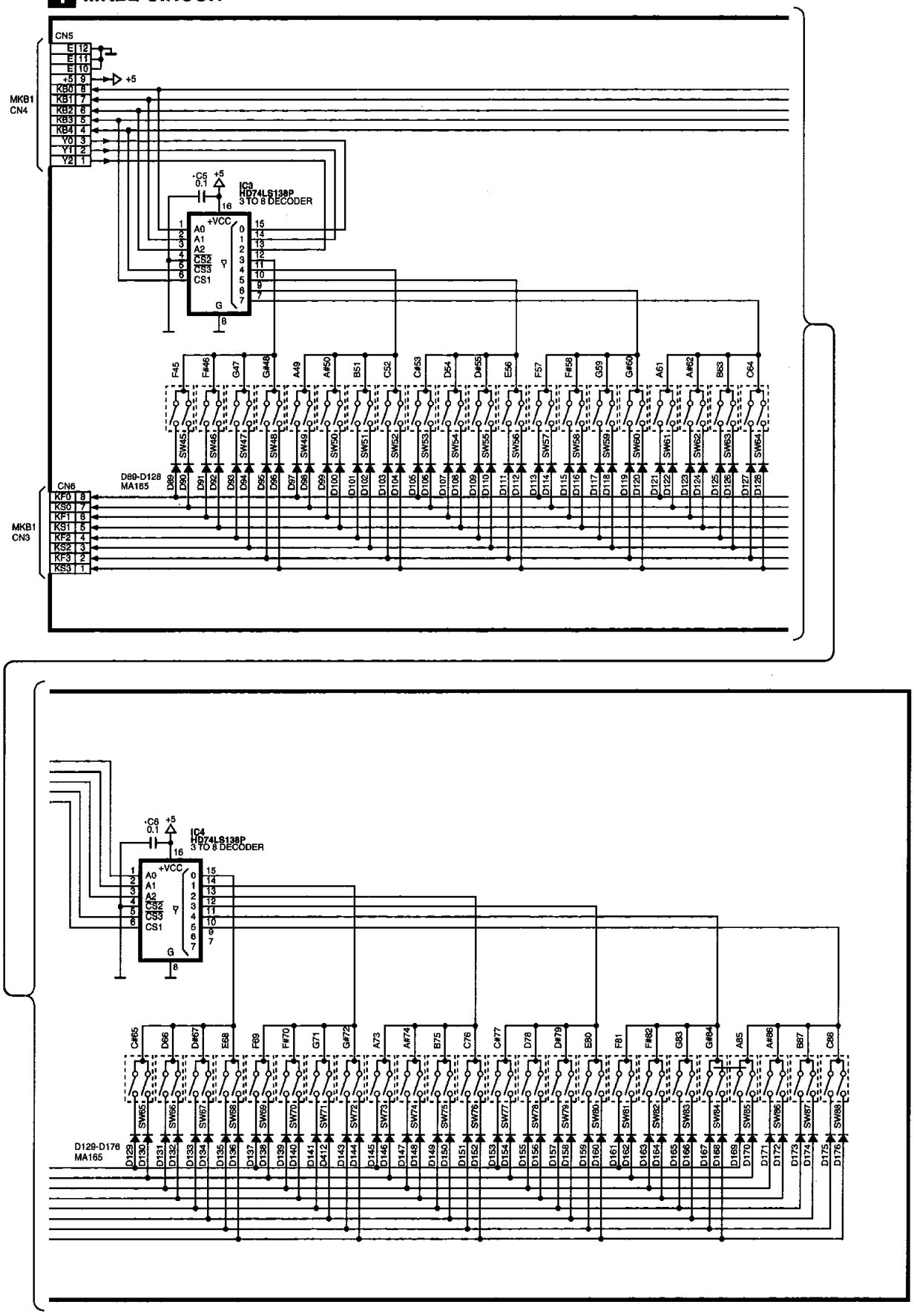
I MKB2 P.C.B.



H MKB1 CIRCUIT



I MKB2 CIRCUIT



Ref. No.	Part No.	Description	P/S
DIODES			
D1, 2	SVDGERA1502	RECTIFIER	2
D4, 6, 7, 9	SVDS3V20	RECTIFIER	4
D11, 12	MA4180	ZENER, 18V	2
D13, 14	EK04	DIODE	2
D15～17, 22, 23, 30～32	MA165	DIODE	8
COILS			
⚠ L1	QLQGT2T100LA	10 μH×2	1
○ L2～7	QLQGT3T131LA	130 μH×3	6
⚠ R16	QLQGT1B800MB	80 μH	1
JACKS			
JK1	QJSG007AA	PEDAL IN	1
JK2	QJSG016AA	MIDI IN	1
JK3	QJSG016AA	MIDI OUT	1
JK5	QJJG003AA	AUX IN L	1
JK6	QJJG003AA	AUX IN R/R+L	1
JK7	QJJG003AA	LINE OUT L	1
JK8	QJJG003AA	LINE OUT R/R+L	1
⚠ JK9	SJVD0203B	AC INLET	1
SWITCH			
⚠ S1	SSRG100A	VOLTAGE SELECTOR, [X, XS, XD, XT]	1
FUSES			
⚠ F1	XBA1C40NU100	4A, 125V, [M, MC, XM]	1
⚠ F1	XBA2C16TB0	T1.6A, 250V, [X, XS, XD, XT]	1
⚠ F2	XBA2C10TB0	T1.0A, 250V, [X, XS, XD, XT]	1
⚠ F3	XBA2C10TB0	T1.0A, 250V, [EN, EK, EZ, EW, EF, EA, EH, EP, XP, XL, XR, XW, X, XS, XD, XT]	1
⚠ F4, 5	XBA2C16TB0	T1.6A, 250V	2
RESISTORS			
R1, 2	ERDS2TJ103	10kΩ	2
⚠ R3～5	ERD2FCVJ6R8	6.8Ω, 1/4W, FUSE TYPE	3
R6	ERDS2TJ104	100kΩ	1
R7, 8	ERDS2TJ473	47kΩ	2
R9	ERDS2TJ103	10kΩ	1
R10	ERDS2TJ332	3.3kΩ	1
R11	ERDS2TJ472	4.7kΩ	1
R12～14	ERDS2TJ103	10kΩ	3
R15	ERDS2TJ472	4.7kΩ	1
R17	ERDS2TJ332	3.3kΩ	1
R18, 19	ERDS2TJ334	330kΩ	2
R20	ERDS2TJ222	2.2kΩ	1
R21	ERDS2TJ220	22Ω	1
⚠ R22	ERD25FVJ4R7	4.7Ω, 1/4W, FLAME-PROOF	1
⚠ R23	ERD2FCVG220	22Ω, 1/4W, FUSE TYPE	1
R24, 25	ERDS2TJ334	330kΩ	2
R26	ERDS2TJ222	2.2kΩ	1
R27	ERDS2TJ220	22Ω	1
⚠ R28	ERD25FVJ4R7	4.7Ω, 1/4W, FLAME-PROOF	1
⚠ R29	ERD2FCVG220	22Ω, 1/4W, FUSE TYPE	1
R30	ERDS2TJ332	3.3kΩ	1
R31	ERDS2TJ682	6.8kΩ	1
R32	ERDS2TJ223	22kΩ	1
R33	ERDS2TJ563	56kΩ	1
R34	ERDS2TJ682	6.8kΩ	1
R35	ERDS2TJ332	3.3kΩ	1

Ref. No.	Part No.	Description	P/S
R36	ERDS2TJ682	6.8kΩ	1
R37	ERDS2TJ223	22kΩ	1
R38	ERDS2TJ563	56kΩ	1
R39, 40	ERDS2TJ682	6.8kΩ	2
R41	ERDS2TJ152	1.5kΩ	1
R42	ERDS2TJ274	270kΩ	1
R43	ERDS2TJ222	2.2kΩ	1
R44	ERDS2TJ274	270kΩ	1
R45	ERDS2TJ103	10kΩ	1
R46	ERDS2TJ274	270kΩ	1
R47	ERDS2TJ122	1.2kΩ	1
R48	ERDS2TJ224	220kΩ	1
R49	ERDS2TJ182	1.8kΩ	1
R50	ERDS2TJ224	220kΩ	1
R51	ERDS2TJ222	2.2kΩ	1
R52	ERDS2TJ274	270kΩ	1
R53	ERDS2TJ682	6.8kΩ	1
R54	ERDS2TJ152	1.5kΩ	1
R55	ERDS2TJ274	270kΩ	1
R56	ERDS2TJ222	2.2kΩ	1
R57	ERDS2TJ274	270kΩ	1
R58	ERDS2TJ103	10kΩ	1
R59	ERDS2TJ274	270kΩ	1
R60	ERDS2TJ122	1.2kΩ	1
R61	ERDS2TJ224	220kΩ	1
R62	ERDS2TJ182	1.8kΩ	1
R63	ERDS2TJ224	220kΩ	1
R64	ERDS2TJ222	2.2kΩ	1
R65	ERDS2TJ274	270kΩ	1
R66	ERDS2TJ223	22kΩ	1
R67	ERDS2TJ474	470kΩ	1
R68	ERDS2TJ102	1kΩ	1
R69	ERDS2TJ272	2.7kΩ	1
R70	ER0S2CKF1001	1kΩ, ±1%	1
R71	ER0S2CKF1002	10kΩ, ±1%	1
R72	ER0S2CKF1001	1kΩ, ±1%	1
R73	ERDS2TJ272	2.7kΩ	1
⚠ R74	ERD2FCVG101	100Ω, 1/4W, FUSE TYPE	1
R76～78	ERDS2TJ331	330Ω	3
⚠ R79	ERD2FCVG101	100Ω, 1/4W, FUSE TYPE	1
⚠ R80	ERD2FCVJ4R7	4.7Ω, 1/4W, FUSE TYPE	1
R82	ERDS2TJ223	22kΩ	1
R83	ERDS2TJ474	470kΩ	1
R84	ERDS2TJ102	1kΩ	1
R85	ERDS2TJ272	2.7kΩ	1
R86	ER0S2CKF1001	1kΩ, ±1%	1
R87	ER0S2CKF1002	10kΩ, ±1%	1
R88	ER0S2CKF1001	1kΩ, ±1%	1
R89	ERDS2TJ272	2.7kΩ	1
⚠ R90	ERD2FCVG101	100Ω, 1/4W, FUSE TYPE	1
R91～93	ERDS2TJ331	330Ω	3
⚠ R94	ERD2FCVG101	100Ω, 1/4W, FUSE TYPE	1
⚠ R95	ERD2FCVJ4R7	4.7Ω, 1/4W, FUSE TYPE	1
R99, 100	ERDS2TJ681	680Ω	2
R102, 104, 106	ERDS2TJ471	470Ω	3
R110	ERDS2TJ151	150Ω	1
R111	ERDS2TJ330	33Ω	1
R113	ERDS2TJ221	220Ω	1
R114	ERDS2TJ331	330Ω	1
⚠ R115, 116	ERQ14AJ2R0	2Ω, 1/4W, FUSE TYPE	2
CAPACITORS			
⚠ C1	ECKCVA1472MF	4700pF, LINE CAPACITOR	1
⚠ C2	ECQU2A104MN	0.1 μF, 250V, ACROSS-THE LINE CAPACITOR	1
C4, 6	ECA1VM472	4700 μF, 35V	2
C8, 9	ECRF1H104ZF	0.1 μF	2
C10	ECEA1CKA100	10 μF, 16V	1

Ref. No.	Part No.	Description	P/S
C11	ECA1CM331	330 μF, 16V	1
C12	ECEA1HKN010	1 μF, 50V	1
C13	ECCR1H221J	220pF	1
C14	ECEA1HKN010	1 μF, 50V	1
C15	ECCR1H221J	220pF	1
C16	ECQB1H103JF	0.01 μF	1
C17	ECEA1HKN010	1 μF, 50V	1
C18	ECQV1H104JM	0.1 μF	1
C19	ECQB1H333JF	0.033 μF	1
C20	ECQG1H682KZ	0.0068 μF	1
C21	ECQV1H683JM	0.068 μF	1
C22	ECQG1H472KZ	0.0047 μF	1
C23	ECQV1H104JM	0.1 μF	1
C24	ECQG1H152KZ	0.0015 μF	1
C25	ECQV1H224JM	0.22 μF	1
C26	ECQG1H472KZ	0.0047 μF	1
C27	ECQG1H682KZ	0.0068 μF	1
C28	ECQG1H102KZ	0.001 μF	1
C29	ECQB1H103JF	0.01 μF	1
C30	ECEA1HKN010	1 μF, 50V	1
C31	ECQV1H104JM	0.1 μF	1
C32	ECQB1H333JF	0.033 μF	1
C33	ECQG1H682KZ	0.0068 μF	1
C34	ECQV1H683JM	0.068 μF	1
C35	ECQB1H223JF	0.022 μF	1
C36	ECQV1H104JM	0.1 μF	1
C37	ECQG1H152KZ	0.0015 μF	1
C38	ECQV1H224JM	0.22 μF	1
C39	ECQG1H472KZ	0.0047 μF	1
C40	ECQG1H682KZ	0.0068 μF	1
C41	ECQG1H102KZ	0.001 μF	1
C42, 43	ECCR1H100D	10pF	2
C44	ECQV1H334JM	0.33 μF	1
C45	ECQB1H223JF	0.022 μF	1
C46	ECQV1H104JM	0.1 μF	1
C49	ECQV1H334JM	0.33 μF	1
C50	ECQB1H223JF	0.022 μF	1
C51	ECQV1H104JM	0.1 μF	1
C54, 55	ECBA1C222MR	0.0022 μF	2
C56, 57	ECRF1H104ZF	0.1 μF	2
C58, 59	ECBA1C222MR	0.0022 μF	2
C60	ECRF1H104ZF	0.1 μF	1
C65	ECCR1H221J	220pF	1
C66	ECKF1E473ZV	0.047 μF	1
C67	ECEA1HKA010	1 μF, 50V	1
C73	ECRF1H104ZF	0.1 μF	1

HP: HEADPHONE CIRCUIT

Ref. No.	Part No.	Description	P/S
DIODE			
D1	SEL4214RLC05	LED, POWER INDICATOR	1
COIL			
○ L1	QLQGT3T131LA	130 μH×3	1
JACKS			
JK1	QJJG010AA	HEADPHONE 1	1
JK2	QJJG010AA	HEADPHONE 2	1

Ref. No.	Part No.	Description	P/S
WIRE			
W1	QEXGRA01005A	WIRE	1
RESISTORS			
R1~4 ⚠	ERG1SJ470	47Ω, 1W, FLAME-PROOF	4
CAPACITORS			
C1, 2	ECKF1E473ZV	0.047 μF	2
C3	ECRF1H104ZF	0.1 μF	1

CPL: CONTROL PANEL LEFT CIRCUIT

Ref. No.	Part No.	Description	P/S
INTEGRATED CIRCUITS			
IC1	M37471M2196S	8 BIT MICROCOMPUTER	1
IC2, 3	HD74LS07P	HEX BUFFERS	2
TRANSISTORS			
Q2~6	2SA830SB	TRANSISTOR	5
DIODES			
D59, 60, 66~69, 73~76, 81, 84, 89	MA165	DIODE	13
D256~259, 265~267, 280~283, 288, 291	LN282R	LED (RED)	13
OSCILLATOR			
X1	EF0EC4004A3	4MHz, CERAMIC OSCILLATOR	1
SWITCHES			
S59, 60, 66~68, 73~76, 81, 84, 89	EVQ21507K	PUSH SWITCH	12
VARIABLE RESISTOR			
VR2	QRVG25P01B53	5KΩ B, MAIN VOLUME	1
WIRE			
○ W1	QEXGRA01007L	WIRE	1
RESISTORS			
R1	ERDS2TJ472	4.7kΩ	1
R2, 3	ERDS2T0	0Ω, 1/4W	2
R4	ERDS2TJ101	100Ω	1
R5	ERDS2TJ471	470Ω	1
R6, 7	ERDS2TJ221	220Ω	2
R8	ERDS2TJ471	470Ω	1
R9, 10	ERDS2TJ103	10kΩ	2
R11	ERDS2TJ104	100kΩ	1
R12~19, 21~25	ERDS2TJ103	10kΩ	13
R26~37	ERDS2TJ101	100Ω	12

Ref. No.	Part No.	Description	P/S
CAPACITORS			
C1	ECEA0JKS101	100 μF, 6.3V	1
C2	QCBG1H104ZFA	0.1 μF	1
C3	ECBA1E223ZF	0.022 μF	1
C4	ECEA0JKS101	100 μF, 6.3V	1
C7, 10	QCBG1H104ZFA	0.1 μF	2

CPR: CONTROL PANEL RIGHT CIRCUIT

Ref. No.	Part No.	Description	P/S
DIODES			
D1, 2, 9, 10, 17, 18, 25, 26, 33, 34, 41, 42, 49	MA165	DIODE	13
D232~242, 244~246	LN282R	LED (RED)	14
DISPLAY			
LED1	LB603VF	TRIPLE 8 SEGMENTS DISPLAY	1
SWITCHES			
S1, 2, 9, 10, 17, 18, 25, 26, 33, 34, 41, 42, 49	EVQ21507K	PUSH SWITCH	13

PKB: PEDAL KEYBOARD CIRCUIT

Ref. No.	Part No.	Description	P/S
SWITCHES			
S1~3	QSTGT001AA	LEVER SWITCH	3
RESISTORS			
JR1~3	ERDS2T0	0Ω, 1/4W	3
R8~10	ERDS2TJ472	4.7kΩ	3
CAPACITOR			
C1	ECRF1H104ZF	0.1 μF	1

MKB1: MANUAL KEYBOARD 1 CIRCUIT

Ref. No.	Part No.	Description	P/S
INTEGRATED CIRCUITS			
IC1	ST93C46CB1	1M BIT PROGRAMMED EEPROM	1
IC2	HD74LS138P	3 TO 8 DECODER	1
DIODES			
D1~88	MA165	DIODE	88

Ref. No.	Part No.	Description	P/S
DIODES			
C1	ECRF1H104ZF	0.1 μF	1
C2	ECEA0JKA470	47 μF, 6.3V	1
C3, 4	ECRF1H104ZF	0.1 μF	2

MKB2: MANUAL KEYBOARD 2 CIRCUIT

Ref. No.	Part No.	Description	P/S
INTEGRATED CIRCUITS			
IC3, 4	HD74LS138P	3 TO 8 DECODER	2
DIODES			
D89~176	MA165	DIODE	88
CAPACITORS			
C5, 6	ECRF1H104ZF	0.1 μF	2

■WIRING PARTS

Ref. No.	Part No.	Description	P/S
W1	QJLG013AA	PEDAL CORD	1
W2	QEXGSS10015A	CONNECTOR WITH WIRE	1
W3	QEXGSS07010A	CONNECTOR WITH WIRE	1
W4	QEXGSS12010A	CONNECTOR WITH WIRE	1
○ W5	QEXGSS06105A	CONNECTOR WITH WIRE	1
○ W6	QEXGSS16060A	CONNECTOR WITH WIRE	1
W7	QEXGSS04065A	CONNECTOR WITH WIRE	1
○ W8	QEXGSS05028A	CONNECTOR WITH WIRE	1
W9	QEXGSS06030B	CONNECTOR WITH WIRE	1
○ W10	QEXGVH02055C	CONNECTOR WITH WIRE	1
○ W11	QEXGVH02040B	CONNECTOR WITH WIRE	1
○ W12	QEXGSS16022C	CONNECTOR WITH WIRE	1
W13	QEUGKCH06BB	FLAT CABLE	1
W14	QEUGK8H07BB	FLAT CABLE	1
W15 ⚠	QEXGVH03105B	CONNECTOR WITH WIRE	1

REPLACEMENT PARTS LIST.....Cabinet and Chassis Parts List

Notes:

1. The marking (RTL) indicates that the Retention Time is limited for this item. After the discontinuation of this assembly in production, the item will continue to be available for a specific period of time. The retension period of availability is dependant on the type of assembly, and in accordance with the laws governing part and product retention.
   After the end of this period, the assembly will no longer be available.
2. ○ mark are new parts.
   Cabinet Colour
   • SX-PX332.....Black • SX-PX332M.....Walnut
3. Important safety notice
   Components identified by ⚠ mark have special characteristics important for safety. When replacing any of these components, use only manufacturer's specified parts.
4. For part No. with area mark, check the area when placing an order.
5. The raw material indication for synthetic resin
   In order to facilitate classification of parts of synthetic resin manufacture and to promote the recycling of natural resources, a raw material symbol for such parts is indicated in the Ref. No./ Material column.
6. The marking (※) indicates that the Retention Time is limited for this item. After the discontinuation of this assembly in production; the item will continue to be available for a specific period of time.

SX-PX332: CABINET & CHASSIS PARTS

	Ref. No.		Part No.	Description	P/S
			SPEAKERS		
○	SP1, 2		EAS14PL93E	14cm, 6Ω	2
			TRANSFORMERS		
	T1	⚠	QTPG1M025A	POWER TRANSFORMER, [EN, EK, EZ, EW, EF, EA, EP, EH, X, XL, XR, XS, XT, XD, XP, XW]	1
	T1	⚠	QTPG1M022A	POWER TRANSFORMER, [M, MC, XM]	1
			POWER CORDS & PLUG		
	PC1	⚠	QJAG027AA	POWER CORD, [EN, EZ, EW, EF, EA, EP, EH, X, XS, XT, XP, XW]	1
	PC1	⚠	QJAG025AA	POWER CORD, [M, MC, XM]	1
	PC1	⚠	QJAG028AA	POWER CORD, [EK, XD]	1
	PC1	⚠	QJAG029AA	POWER CORD, [XL, XR]	1
	PC2	⚠	SJP5213-2	ATTACHMENT PLUG, [X, XT, XP]	1
			CABINET PARTS		
	1		SBNG7050A	KNOB	1
○	2		QGPG0125DA	CONTROL PANEL	1
	3		QMFG1107AA	FELT (RED)	1
	4		QGPG0106AA	LED PANEL	1
	5	ABS	QGPG0123BB	BUTTON	1
	6	ABS	QGPG0124AB	BUTTON	1
	7		QMCG004AA	SPACER	9
	9	⚠	SJS9231A	AC INLET COVER, [EN, EK, EZ, EW, EF, EA, EP, EH, X, XL, XR, XS, XT, XD, XP, XW]	1
	9	⚠	SJS9334A	AC INLET COVER, [M, MC, XM]	1
○	10		QMRG5155AAK	CUSHION	2
○	11	PS	QKSGG010DA	GUIDE	1

SX-PX332M: CABINET & CHASSIS PARTS

	Ref. No.		Part No.	Description	P/S
			SPEAKERS		
○	SP1, 2		EAS14PL93E	14cm, 6Ω	2
			TRANSFORMERS		
	T1	⚠	QTPG1M025A	POWER TRANSFORMER, [EN, EK, EZ, EW, EA, EP, X, XL, XR]	1
	T1	⚠	QTPG1M022A	POWER TRANSFORMER, [M, MC, XM]	1
			POWER CORDS & PLUG		
	PC1	⚠	QJAG027AA	POWER CORD, [EN, EZ, EW, EA, EP, X]	1
	PC1	⚠	QJAG025AA	POWER CORD, [M, MC, XM]	1
	PC1	⚠	QJAG028AA	POWER CORD, [EK]	1
	PC1	⚠	QJAG029AA	POWER CORD, [XL, XR]	1
	PC2	⚠	SJP5213-2	ATTACHMENT PLUG, [X]	1
			CABINET PARTS		
	1		SBNG7050A	KNOB	1
○	2		QGPG0125DA	CONTROL PANEL	1
	3		QMFG1107AA	FELT (RED)	1
	4		QGPG0106AA	LED PANEL	1
	5	ABS	QGPG0123BB	BUTTON	1
	6	ABS	QGPG0124AB	BUTTON	1
	7		QMCG004AA	SPACER	9
	9	⚠	SJS9231A	AC INLET COVER, [EN, EK, EZ, EW, EA, EP, X, XL, XR]	1
	9	⚠	SJS9334A	AC INLET COVER, [M, MC, XM]	1
○	10		QMRG5155AAK	CUSHION	2
○	11	PS	QKSGG010DA	GUIDE	1
○	12	PS	QKSGG011DA	GUIDE	1
○	13		QYAG1040AB	MUSIC STAND	1
	13-1		SBLG230A	STAY	2

SX-PX332: CABINET & CHASSIS PARTS

Ref. No.	Part No.	Description	P/S
○ 12 PS	QKSGG011DA	GUIDE	1
○ 13	QYAG1040AA	MUSIC STAND	1
13-1	SBLG230A	STAY	2
○ 14	QKQGA136AA	TOP COVER ASS'Y	1
14-1	QMRG7021AB	SLEEVE	2
○ 14-2	QMFG1274AA	FELT	3
14-3	QMFG1057AA	FELT	4
14-4	SGBG160B	BADGE	1
○ 15	QKQGF036AA	KEYBOARD COVER ASS'Y	1
15-1	QMRG7056AA	HOLDER	2
15-2	QWBG002AA	HOLDER	1
15-3	QXQG007AA	AXLETREE	1
15-4	QGKG0132AA	ORNAMENT	1
15-5	QMRG7031DC	PROTECTOR	1
15-6	QMRG7032DC	PROTECTOR	1
16	QWBG002AA	HOLDER	3
17	SHRG1230A	CORD CLAMPER	1
18	QLZG021A	CORE	3
○ 19※	QYKG245AA	CABINET ASS'Y	1
○ 20	QKQGD122AA	CROSS BOARD	1
21	SHRG9620A	CORD CLAMPER	3
22	QMFG4197AA	CUSHION	1
23	QMFG4198AA	CUSHION	1
○ 24	QMRG5206AA	CUSHION	1
○ 25	QKQGB507AA	LEFT PLANK ASS'Y	1
○ 25-1	QMFG1229AA	FELT	1
○ 25-2	QKSGB006AAK	LEG	1
25-3 PP	SHRG2130B-K	FOOT	2
○ 26	QKQGB508AA	RIGHT PLANK ASS'Y	1
○ 26-1	QMFG1229AA	FELT	1
○ 26-2	QKSGB006AAK	LEG	1
26-3 PP	SHRG2130B-K	FOOT	2
○ 27	QKQGM098AF	PEDAL BOX ASS'Y	1
27-1	QGKG0113AA	ORNAMENT	3
28	QMBG009AA	SPRING	3
29	QMFG1133AA	FELT	3
30	QMFG1134AA	FELT	3
31	QMWG4002AA	PEDAL ARM	3
32	QMFG1135AA	FELT	3
33	QKAG0011AA	FOOT	1
34	SGKG980A	LABEL	1
○ 35	QMFG1240AAK	FELT	4
○ 36	QMFG1241AAK	FELT	2

SCREWS & WASHERS

N1	XNS12FZ	NUT	2
N2	XTB3+6A	SCREW	6
N3	XTB4+10A	SCREW	2
N4	XTB3+10AFZ	SCREW	1
N5	XTN4+16F	SCREW WITH WASHER	1
N6	XYN4+F16FZ	SCREW WITH WASHER	3
N7	XTB35+14A	SCREW	1
N8	XTT4+25A	SCREW	6
N9	XTT4+12AFZ	SCREW	2
N10	XTB3+10AFZ	SCREW	2
N11	XTW3+10Q	SCREW	24
N12	XTW3+20TFZ	SCREW	7
○ N13	XYA35+JA12	SCREW	10
N15	XYN3+C8FZ	SCREW WITH WASHER	1
N16	XTW3+10JFZ	SCREW	3
N17	XTB4+16A	SCREW	8
N18	XTT4+10AFZ	SCREW	2
N19	XTT4+16A	SCREW	2
N20	QHDG021AA	SCREW WITH WASHER	10
N21	QHWG007AA	NUT	2
N22	XTB35+10A	SCREW	3

SX-PX332M: CABINET & CHASSIS PARTS

Ref. No.	Part No.	Description	P/S
○ 14	QKQGA136AB	TOP COVER ASS'Y	1
14-1	QMRG7021AA	SLEEVE	2
○ 14-2	QMFG1274AA	FELT	3
14-3	QMFG1057AA	FELT	4
14-4	SGBG160B	BADGE	1
○ 15	QKQGF036AB	KEYBOARD COVER ASS'Y	1
15-1	QMRG7056AA	HOLDER	2
15-2	QWBG002AA	HOLDER	1
15-3	QXQG007AA	AXLETREE	1
15-4	QGKG0132AB	ORNAMENT	1
15-5	QMRG7031DC	PROTECTOR	1
15-6	QMRG7032DC	PROTECTOR	1
16	QWBG002AA	HOLDER	3
17	SHRG1230A	CORD CLAMPER	1
18	QLZG021A	CORE	3
○ 19※	QYKG245AB	CABINET ASS'Y	1
○ 20	QKQGD122AB	CROSS BOARD	1
21	SHRG9620A	CORD CLAMPER	3
22	QMFG4197AA	CUSHION	1
23	QMFG4198AA	CUSHION	1
○ 24	QMRG5206AA	CUSHION	1
○ 25	QKQGB507AB	LEFT PLANK ASS'Y	1
○ 25-1	QMFG1229AA	FELT	1
○ 25-2	QKSGB006ACK	LEG	1
25-3 PP	SHRG2130B-K	FOOT	2
○ 26	QKQGB508AB	RIGHT PLANK ASS'Y	1
○ 26-1	QMFG1229AA	FELT	1
○ 26-2	QKSGB007ACK	LEG	1
26-3 PP	SHRG2130B-K	FOOT	2
○ 27	QKQGM098AC	PEDAL BOX ASS'Y	1
27-1	QGKG0113AA	ORNAMENT	3
28	QMBG009AA	SPRING	3
29	QMFG1133AA	FELT	3
30	QMFG1134AA	FELT	3
31	QMWG4002AA	PEDAL ARM	3
32	QMFG1135AA	FELT	3
33	QKAG0011AA	FOOT	1
34	SGKG980A	LABEL	1
○ 35	QMFG1240AAK	FELT	4
○ 36	QMFG1241AAK	FELT	2

SCREWS & WASHERS

N1	XNS12FZ	NUT	2
N2	XTB3+6A	SCREW	6
N3	XTB4+10A	SCREW	2
N4	XTB3+10AFZ	SCREW	1
N5	XTN4+16F	SCREW WITH WASHER	1
N6	XYN4+F16FZ	SCREW WITH WASHER	3
N7	XTB35+14A	SCREW	1
N8	XTT4+25A	SCREW	6
N9	XTT4+12AFZ	SCREW	2
N10	XTB3+10AFZ	SCREW	2
N11	XTW3+10Q	SCREW	24
N12	XTW3+20TFZ	SCREW	7
○ N13	XYA35+JA12	SCREW	10
N15	XYN3+C8FZ	SCREW WITH WASHER	1
N16	XTW3+10JFZ	SCREW	3
N17	XTB4+16A	SCREW	8
N18	XTT4+10AFZ	SCREW	2
N19	XTT4+16A	SCREW	2
N20	QHDG021AA	SCREW WITH WASHER	10
N21	QHWG007AA	NUT	2
N22	XTB35+10A	SCREW	3
○ N23	GTT4+25AFZ	SCREW	4
N24	XYN4+F16	SCREW WITH WASHER	4
N25	XYN4+F25	SCREW WITH WASHER	8

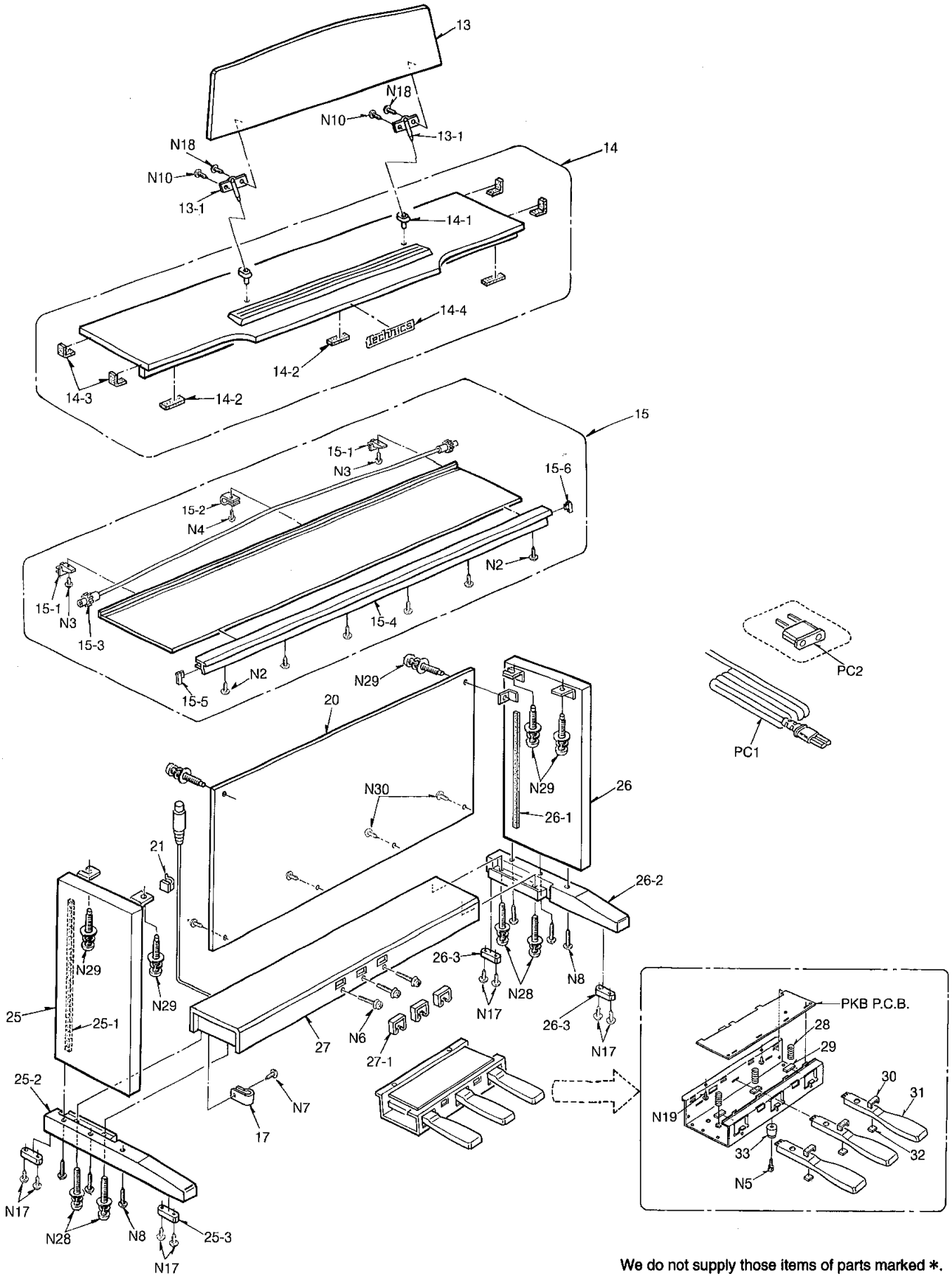
SX-PX332: CABINET & CHASSIS PARTS

Ref. No.	Part No.	Description	P/S
○ N23	GTT4+25AFZ	SCREW	4
N24	XYN4+F16	SCREW WITH WASHER	4
N25	XYN4+F25	SCREW WITH WASHER	8
N26	XTB35+16A	SCREW	10
N27	XTN4+50AFZ	SCREW	2
N28	QHDG032AB	SCREW WITH WASHER	4
N29	QHDG016AB	SCREW BOLT	6
N30	XTT5+20AFZ	SCREW	4
○ N31	QHDG055AA	SCREW	8

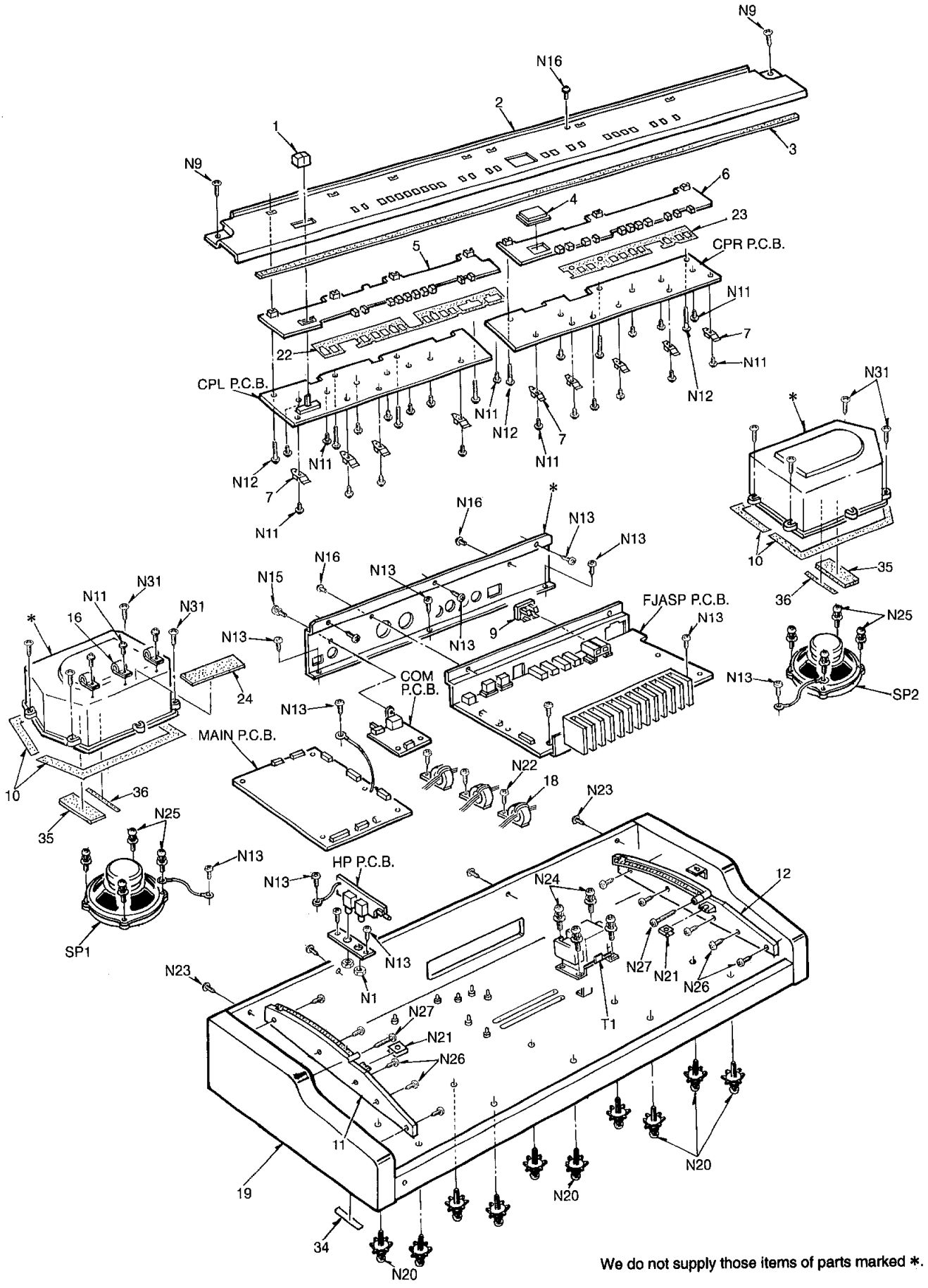
SX-PX332M: CABINET & CHASSIS PARTS

Ref. No.	Part No.	Description	P/S
N26	XTB35+16A	SCREW	10
N27	XTN4+50AFZ	SCREW	2
N28	QHDG032AB	SCREW WITH WASHER	4
N29	QHDG016AB	SCREW BOLT	6
N30	XTT5+20AFZ	SCREW	4
○ N31	QHDG055AA	SCREW	8

■CABINET PARTS LOCATION

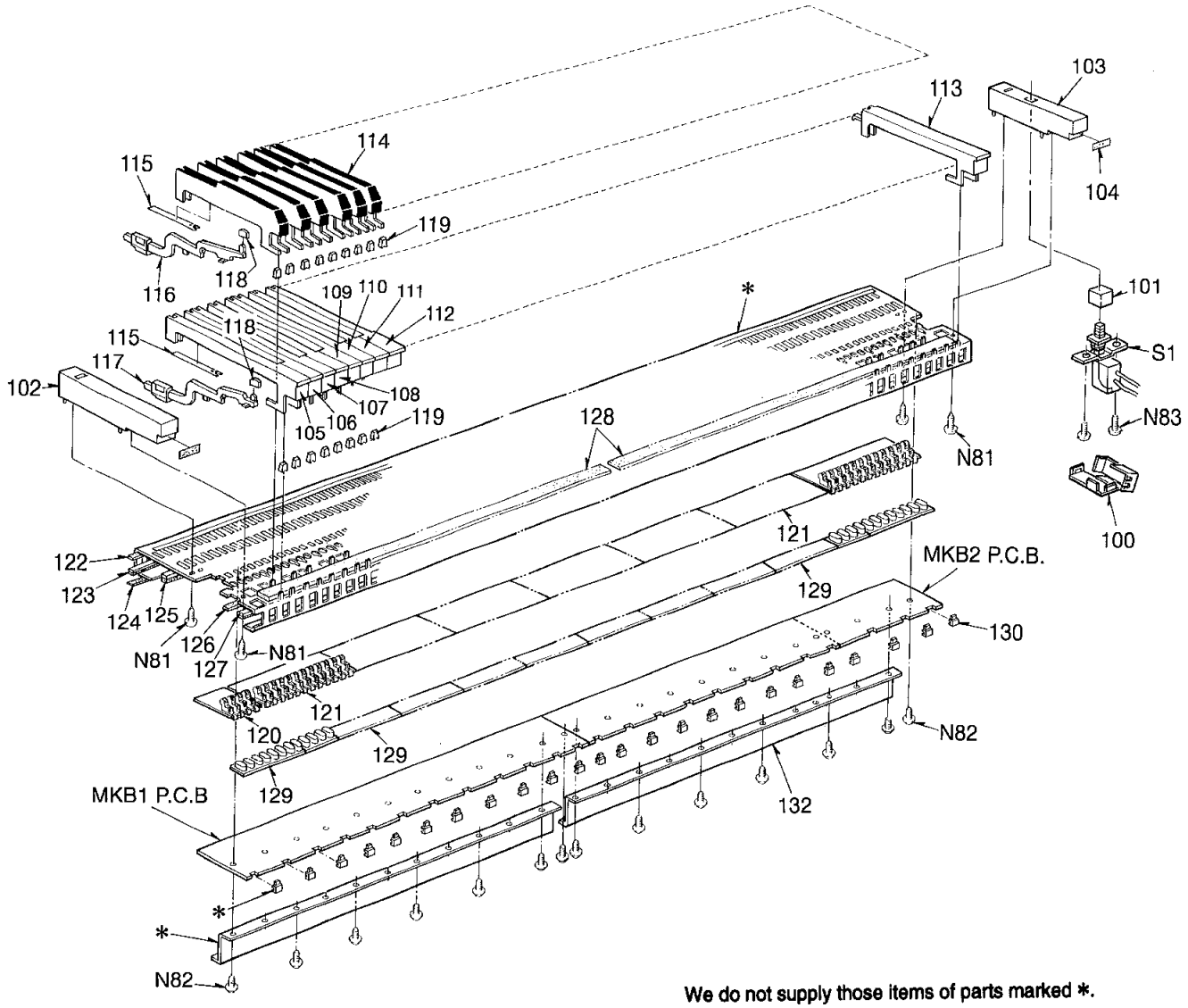


We do not supply those items of parts marked ∗.



We do not supply those items of parts marked *.

■MANUAL KEYBOARD PARTS LOCATION



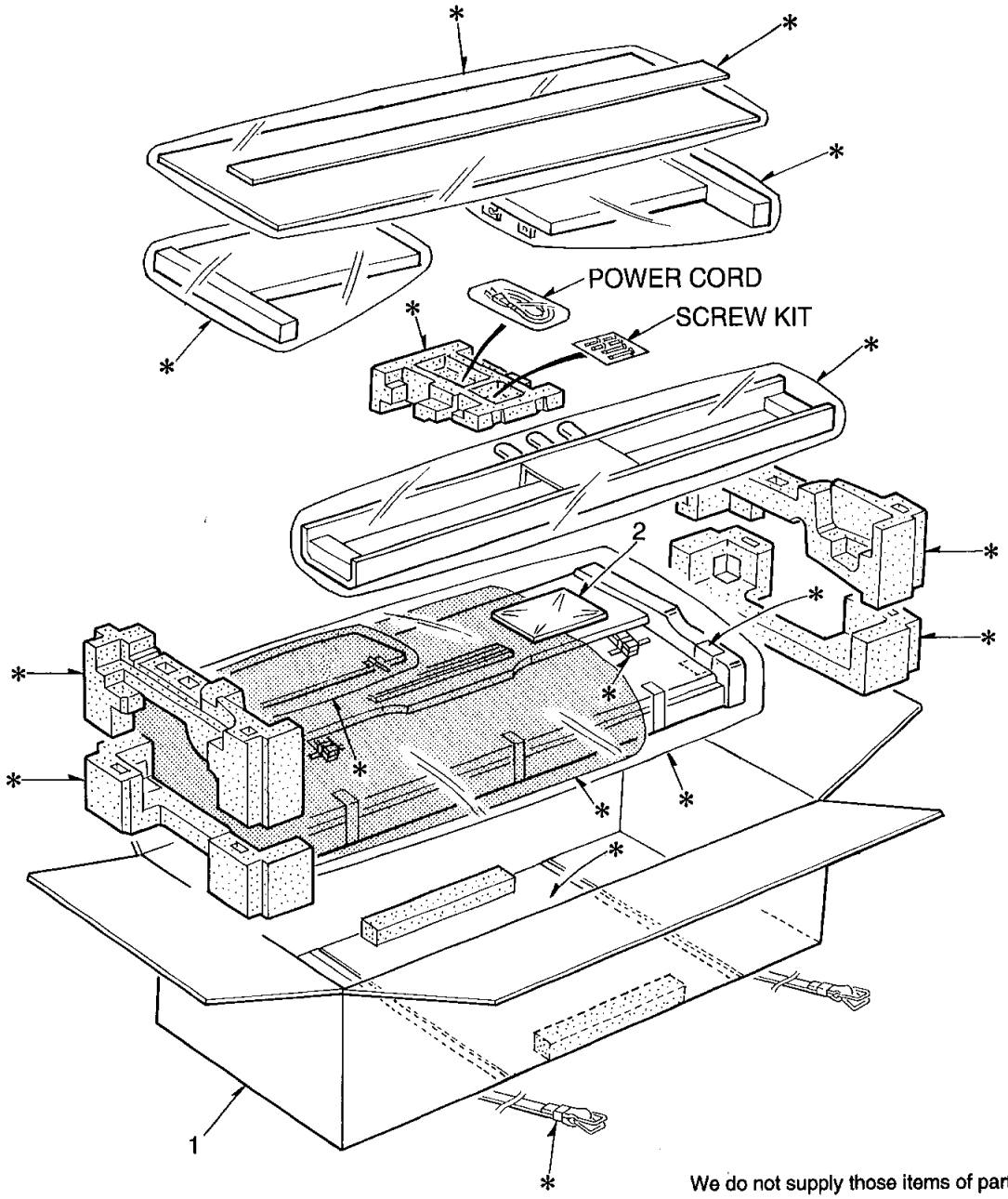
We do not supply those items of parts marked *.

■MANUAL KEYBOARD PARTS

Ref. No.		Part No.	Description	P/S
		SWITCH		
S1	⚠	ESB8273V	POWER SWITCH	1
		MANUAL KEYBOARD PARTS		
100	⚠ PP	SHRG8390A	COVER, POWER SW	1
101	ABS	QGUG1040AA	BUTTON, POWER SWITCH	1
102	PS	QGPG0042AB	END COVER PANEL, LEFT	1
103	PS	QGPG0041CB	END COVER PANEL, RIGHT	1
104		QMFG1104AA	FELT	2
105	AS	QMWG1001AB	WHITE KEY (FIRST OCTAVE A KEY)	1
106	AS	QMWG1002AB	WHITE KEY (B KEY)	8
107	AS	QMWG1003AB	WHITE KEY (C KEY)	7
108	AS	QMWG1004AB	WHITE KEY (D KEY)	7
109	AS	QMWG1005AB	WHITE KEY (E KEY)	7
110	AS	QMWG1006AB	WHITE KEY (F KEY)	7
111	AS	QMWG1007AB	WHITE KEY (G KEY)	7
112	AS	QMWG1008AB	WHITE KEY (A KEY)	7
113	AS	QMWG1009AB	WHITE KEY (TOP OCTAVE C KEY)	1
114	AS	QMWG2001AC	BLACK KEY	36
115		SUSG534A	SPRING	88
116		QMWG8019CA	HAMMER (BLACK KEY)	36
117		QMWG8017DA	HAMMER (WHITE KEY)	52

Ref. No.		Part No.	Description	P/S
118		SHGG9121A	RUBBER CAP (HAMMER)	88
119	PA	QMWG8037AA	KEY GUIDE	88
120	ABS	QMWG8022AA	FULCURUM (4 PCS. ON ONE)	1
121	ABS	QMWG8021AA	FULCURUM (12 PCS. ON ONE)	7
122		SHRGA9080A	SPONGE	2
123		QMFG1073AA	FELT	2
124		QMFG1230AA	FELT	2
125		QMFG1101AA	FELT	2
126		QMFG1061AB	FELT	2
127		QMFG1231AC	FELT	2
128		QMFG1086AB	FELT	2
129		QMWG6006AA	RUBBER SWITCH (8 PCS. ON ONE)	11
		SCREWS		
N81		XTB4+12A	SCREW	4
N82		XTW3+10T	SCREW	14
N83		XTV3+10C	SCREW	2

■PACKING



We do not supply those items of parts marked *.

■PACKING PARTS

Ref. No.	Part No.	Description	P/S
PACKING PARTS			
○ 1	QPGG0440AA	PACKING CASE, PAPER, SX-PX332	1
○ 1	QPGG0440AB	PACKING CASE, PAPER, SX-PX332M	1
PACKING PARTS			
○ 2	QQFGPX332AA	OPERATING INSTRUCTION MANUAL, [EN, EP, X, XT, XD, XP, XM]	1
○ 2	QQFGPX332CA	OPERATING INSTRUCTION MANUAL, [M]	1
○ 2-1	QQTG0509A	ENGLISH	1
○ 2-2	QQTG0510A	FRANCAIS, NERDERLANDS, ITALIANO	1
○ 2	QQFGPX332DA	OPERATING INSTRUCTION MANUAL, [MC]	1

Ref. No.	Part No.	Description	P/S
OPERATING INSTRUCTION MANUAL			
○ 2	QQFGPX332EA	OPERATING INSTRUCTION MANUAL, [EK, XL, XR, XS, XW]	1
○ 2	QQFGPX332FA	OPERATING INSTRUCTION MANUAL, [EZ]	1
○ 2-1	QQTG0510A	FRANCAIS, NERDERLANDS, ITALIANO	1
○ 2-2	QQTG0511A	DEUTSCH	
○ 2	QQFGPX332GA	OPERATING INSTRUCTION MANUAL, [EW, EH]	1
○ 2	QQFGPX332HA	OPERATING INSTRUCTION MANUAL, [EF]	1
○ 2	QQFGPX332JA	OPERATING INSTRUCTION MANUAL, [EA]	1

Printed in Japan
99032850 Ⓗ H.H./K.K.

Memo

Memo

1774